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PAPERS

OF THE

PEABODY MUSEUM OF AMERICAN ARCHAEOLOGY AND ETHNOLOGY, HARVARD UNIVERSITY

VOL. III. — No. 4

THE MANDANS

A STUDY OF THEIR CULTURE, ARCHAEOLOGY AND LANGUAGE

BY

G. F. WILL

AND

H. J. SPINDEN

WITH FOUR MAPS, FIFTEEN PLATES AND SIXTEEN ILLUSTRATIONS
IN THE TEXT

CAMBRIDGE, MASS.
PUBLISHED BY THE MUSEUM
AUGUST, 1906

[p. 79] [p. 80 is blank]

EDITORIAL NOTE.

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During the summer of 1905 the authors of this paper, two Harvard students of the class of 1906, carried on the exploration of an ancient Indian site in North Dakota. Dr. R. B. Dixon accompanied the party to North Dakota and remained with them for several days to direct the beginning of the field work. The exploration was a successful one and secured for the Museum an important archaeological collection. On their return to college these students made a study of the Mandan culture and language under the guidance of Dr. Dixon. The following paper embodies the results of their researches— archaeological, historical and linguistic. From a comparative study of the archaeological material and the historical data, they draw the conclusion that the site explored is one of the ancient Mandan sites of which there is traditional and historical evidence.

The four heliotype plates are from photographs taken by Mr. Will and Mr. Spinden. The other plates, maps and illustrations in the text are from drawings by Mr. Spinden.

The exploration was under the auspices of the Peabody Museum and was made possible by the generous gift of Mr. Clarence B. Moore (H. U. 1873).

F. W. Putnam,
Curator of the Peabody Museum.

Harvard University,
June 16, 1906.

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PREFACE.

121 In 1904 one of the authors became interested in the history and culture of the Mandans, and later prepared an historical and descriptive sketch of this interesting people. In 1905 an opportunity for archaeological field work led to the formation of a small party of students, who carried on investigations over a period of six weeks in the region formerly occupied by this tribe. The party consisted of Mr. R. R. Hellmann (H. U. '06) and Mr. H. A. Nye (H. U. '06), in addition to the authors of this paper. While working over the archaeological and historical material collected, it was deemed advisable to add the consideration of available linguistic data. The result of these several investigations is embodied in the following paper.

000 Thanks are due to Mr. Martin Burgois for his courteous permission to conduct exploration on his land; and also to Dr. Rawlings, Mr. L. Sperry and Mr. T. Griffin, all of Bismarck, N. D., and to Mr. E. R. Steinbrueck of Mandan, N. D., for various favors.

In the preparation of the paper, thanks are due to Professor F. W. Putnam for his kindly advice and criticism, and to Dr. W. C. Farabee for valuable service rendered in the identification of the animal remains and the measurements of the human bones. Above all, the authors desire to thank Dr. R. B. Dixon for his untiring aid and thorough supervision.

G. F. W. & H. J. S.

Harvard University,
June 15, 1906.

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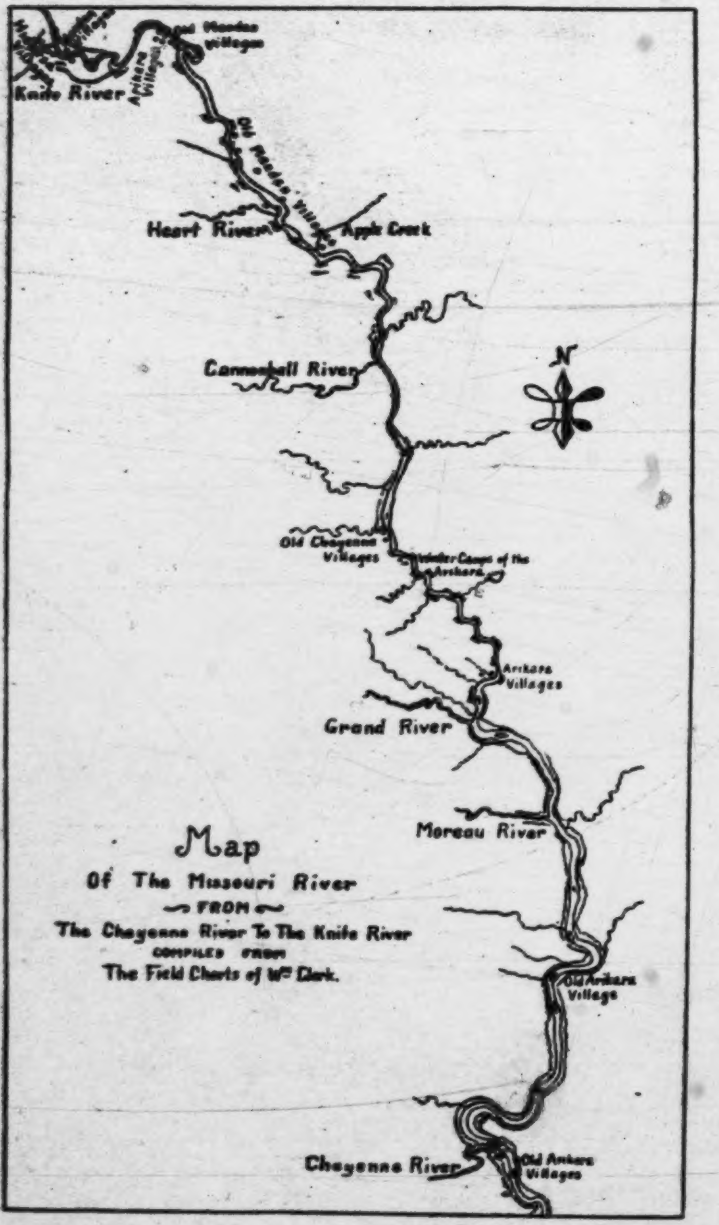
Knife River
Arikara Villages
Mandan villages
Old Mandan Villages
Heart River
Apple Creek
Cannonball River
N
Old Cheyenne Villages
Winter Camps of the Arikara
Arikara Villages
Grand River
Moreau River
Map
Of The Missouri River
FROM
The Cheyenne River To The Knife River
COMPILED FROM
The Field Charts of Wm Clark.
Old Arikara Village
Cheyenne River
Old Arikara Villages

Map. I. THE MIDDLE MISSOURI.

[Facing p. 85]

THE MANDANS.

A STUDY OF THEIR CULTURE, ARCHAEOLOGY AND LANGUAGE.

114 As yet very little archaeological work has been done on the old sites of the Mandan villages in North Dakota, although they are numerous, interesting, and rich in material relating to the past life of the people. The sites in some places have been injured by plowing and farming, but most of them are in good condition, though in a precarious situation owing to the rapid settlement and increasing cultivation of the land about them. Many of the sites have been marred by relic hunters and inexperienced collectors, but none are seriously damaged.

Besides the collection in the Peabody Museum at Cambridge which forms the basis of the archaeological section of this paper, collections from this region are also in the possession of: the American Museum of Natural History in New York, the Minnesota State Historical Society, the North Dakota State Historical Society and the National Museum in Washington. The Minnesota and North Dakota collections, while large and interesting, were not the result of careful, systematic work on any one site.

No single site has yet been fully investigated, and the work last summer was the first attempt at a thorough exploration. A complete excavation of the entire site was beyond the resources of the expedition, which confined itself to a detailed examination of certain selected areas. There still remains a wide field for additional investigation.

On the ethnological side little further research is possible owing to the practical extinction of the tribe. All that can be done is to assemble and sift the considerable mass of information to be gathered from the accounts of early travellers.

114 The position of the Mandans on the main travelled road up the Missouri to the fur country, the fact that their villages were one of the recognized stops on this journey, and their difference from the average Plains Indians which surrounded them, caused travellers to take especial note of them. Moreover, there were many wonderful tales concerning them scattered abroad over the country, started probably by their own less cultured neighbors. Hence there are a number of historical accounts running from the early part of the 18th century, to the middle of the 19th. Only a few of these make any mention of the old village sites.

The first known account of the Mandans is that of the Sieur de la Verendrye.[1] As agent of a Canadian fur company, he made the trip across country from the Portage du Prairie to the Mandan villages in the fall of the year 1738. His account is some fifteen pages long, and is very interesting as giving the only picture of the Mandan period of prosperity which can be obtained. He was led to make this trip to extend the fur trade and because of the wonderful stories related to him by the Assiniboines. Verendrye in his visit to the Mandans was disappointed because they did not come up to these tales.

There is a long jump between Verendrye's account and that of Lewis and Clarke, and this gap is bridged only by an account which cannot be found and is only known to exist by mention of it in a letter.[2] It is said to be the story of a certain McKenzie, who in the employ of a Canadian fur company visited the Mandans in 1772 and brought back a glowing account of them.

Lewis and Clarke,[3] however, are the next certain chroniclers. They arrived among the Mandans in the fall of 1804, and spent the winter at Fort Mandan in the neighborhood of the Mandan villages. Their account is good, but the details are scattered and must be collected from a mass of other material. They furnish practically the only information concerning the

[1] Brymner: Report on the Canadian Archives, 1889, pp. 3-29. Margry, P.: Decouvertes et Etablissements des Francois dans l'Ouest et dans le Sud de l'Amerique septentrionale, vol. VI, pp. 582 et seq. Paris, 1886.

[2] Quoted in Schoolcraft: History, Condition and Prospects, vol. III, p. 253.

[3] All the important editions of the Journals have been examined; for convenience, reference will usually be made to date of entry only.

3:Will and Spinden E-5 (1905) 1906
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location and early condition of the archaeological remains both of the Mandans and Arikara, and their account is thus doubly valuable. 114

Next in point of time comes the journal of Alexander Henry, who visited the Mandans during the year 1806. He was a trader for the Northwest Company and came to the Mandans in connection with the fur trade. He kept a fairly full journal, which was edited and published by Dr. Elliot Coues.[1] In this he gives the details of several weeks residence among the Mandans and Hidatsa with reasonably full descriptions of many interesting details of their life.

After Henry, came two men of lesser importance, but who give some additional facts, although devoting most of their space to the Arikara. These are Brackenridge[2] and Bradbury,[3] who came together, in 1810, and each of whom later printed an account of their journey. The former was an American, the latter an Englishman of scientific interests.

The next authority, chronologically, is the artist and Indian lover, George Catlin.[4] He visited the Mandans in the spring of 1833, and has devoted almost two hundred pages in his ''North American Indians'' to an extended account of that tribe. All his work is colored by his romantic imagination and deep love for the Indians, nevertheless in matters of actual fact he seems to be as reliable as any other authority, judging from comparison with Maximilian and others. Catlin became a great supporter of the wild theory that the Mandans were of Welsh origin, little of this appears, however, in his main work, and his facts have not been interfered with by his theories. His drawings are probably a little idealized, but they, too, afford a reasonably accurate source of information.[5] Withal it may be said that while Catlin's theories are to be questioned, his facts are of value.

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[1] New Light on the Early History of the Greater Northwest; the Manuscript Journals of Alexander Henry and David Thompson. 1799-1814, 3 vols. New York, 1897.

[2] Journal of a Voyage up the River Missouri. Baltimore, 1816.

[3] Travels in Interior America. Liverpool, 1817.

[4] North American Indians. New York, 1841.

[5] Matthews: The Earth Lodge in Art. Amer. Anth. (N. S.), vol. IV, pp. 1 et seq.

114 After Catlin comes Maximilian, Prince of Wied-Neuwied.[1] During the winter of 1833–4 he passed several months among the Mandans, and has given us a minute and accurate account of the manners and customs of the people in so far as he observed them. In addition he has given one of the best vocabularies of Mandan and almost the only grammatical sketch of that language. This, though incomplete, is of great value. There is nothing romantic and imaginative in Maximilian's style and treatment of the Mandans, and he may be justly recognized as the best of the various authorities.

Besides these more important chroniclers of the Mandans there is a group of minor authorities to whom something is due for an occasional fact. Most of these men have taken their accounts almost wholly from the above first-hand narratives, making in some cases small additions of their own. First in this group is Patrick Gass,[2] a member of the Lewis and Clarke expedition. With the exception of McKenzie and Larocque,[3] two Northwest Company men who tell us scarcely anything, he is the only one of the minor authorities who writes from personal observation. The others are men who have only condensed what has been gathered by reading, such are Schoolcraft,[4] Hayden,[5] and Matthews.[6]

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361 The remains which form a basis for the archaeological section of the present paper are part of a single village site. There are numerous other sites of a similar type scattered from the Grand River in South Dakota, to the north side of the Knife River in North Dakota. These sites are attributed to two different tribes, the Mandans and the Arikara. We may first consider the remains which seem to be of Mandan origin.

The field in which these sites are found is restricted to an area along the Missouri River from a few miles south of Apple

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[1] Voyage en l'Amerique du Nord. Paris, 1843.

[2] Journal of the Voyages and Travels of a corps of Discovery under the command of Captain Lewis and Captain Clarke. Philadelphia, 1812.

[3] Journals in Masson, Les Bourgeois de la Campagnie du Nord-Ouest, vol. II. Quebec, 1889.

[4] Op. cit., vol. III, pp. 248 et seq.

[5] Contributions to the Ethnography and Philology of the Indian Tribes of the Missouri Valley. Trans. Am. Philos. Soc. (N. S.), vol. XII, pp. 425 et seq.

[6] Ethnography and Philology of the Hidatsa Indians. Washington, 1877.

Creek in Burleigh Co., North Dakota, to a point some fifteen 172
miles south of the Knife River in Mercer Co., North Dakota, 361
and this field is again subdivided into the historical and the more or less traditional sites. Of the former little will be said. They are the remains of villages which Lewis and Clarke, Maximilian, Catlin, and other early travellers visited, and are situated on the Missouri about fifteen miles below the Knife River. There is another small set of remains intermediate between the traditional and the historical, the stopping place between the former and the latter. These intermediate sites are on the south side of the Missouri on the bluffs southwest of Washburn, and are rather closely connected with several Arikara sites.

We are concerned here, however, with the oldest villages 172
which were visited by only two white men who have left ac- 175
counts, the Sieur de Verendrye, and McKenzie, whose account
is mentioned by D. D. Mitchell in a letter to Schoolcraft. The 361
question might be raised as to how it is known that the sites visited by Verendrye and McKenzie were the oldest ones. The statement of McKenzie that on his visit the Mandans lived in nine villages should suffice to establish this. According to all accounts, after the removal from the early sites the Mandans did not have at any time over five villages, and these soon shrank to even fewer. If McKenzie found nine villages in 1773 the Mandans must have been occupying the earlier sites, and certainly if they were there in 1773, they were very probably there in 1738. The further fact that Verendrye describes the Mandans as being in full power and prosperity shows also that they had as yet suffered none of the losses by disease and war which caused their removal to the later villages.

The location of these oldest Mandan sites comes up next for 172
consideration. They were situated on the Missouri River near 361
the Heart River, some above, some below, on both sides of the
former, but the number of villages is uncertain. The location 175
near the Heart is affirmed by all. Lewis and Clarke's Journal,[1] March 10, 1805, says, "The Mandans formerly lived in six (nine) large villages at and above the mouth of the Heart River." Maximilian[2] says, "After the first alliance with the

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[1] Thwaites Edition, vol. I, p. 271.

[2] Op. cit., p. 436.

172 Hidatsa, the Mandans lived in eight or nine villages at and
175 above the Heart River."

361 The number of these ancient villages is a problem which it is impossible to settle definitely. Even an exact and thorough canvas of the ground cannot settle this, as changes of the river may have caused the entire disappearance of some sites. Historical and archaeological evidence alike leave one in doubt. Verendrye, who visited but one Mandan village, says, "I was answered that there were five forts on the two banks of the river . . . . . much larger than the one we are in."[1] But further on he makes this additional statement, "We noticed that in the plain were several small forts of forty to fifty huts . . . . . but no one was there. . . . . . The forts in the plains were occupied during the summer to work their fields . . . . . there was a large store of reserve grain there."[2] Next in point of time comes Lewis and Clarke's account, from which may be given three extracts. "These villages, nine in number are scattered . . . . . for twenty miles, ... almost all that remains of them is the wall surrounding them and the fallen heaps of earth which covered the houses."[3] Again, "Within the recollection of living witnesses, the Mandans were settled . . . . in nine villages . . . . . about eighty miles below . . . . . . seven on the west and two on the east side of the Missouri. The two . . . . . . wasting before the smallpox and the Sioux united into one village and moved up the river opposite to the Ricaras. The same causes reduced the seven to five . . . . . they immigrated . . . . . to the Ricara Nation . . . . ." Also,[4] "The Mandans formerly lived in six (nine) villages . . . four (six) on the west side, two (three) on the east. One of those on the east and the largest was entirely cut off by Sioux and smallpox."[5] Here is disagreement of the same authority both in the total number of villages and in the relative distribution on the two sides of the river.

Catlin is the next writer who gives a version of the tradition, and in his North American Indians[6] is the statement that the Mandans formerly lived down river in ten villages. Maximilian,

[1] Brymner: op. cit., p. 19.
[2] Ibid., p. 23.
[3] Oct. 22, 1804.
[4] Nov. 21, 1804.
[5] Mar. 10, 1805. Thwaites Edition, I, p. 271.
[6] p. 81.

3: Will and Spinden E-5 (1905) 1906
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who next claims attention, gives at least two different versions of the story. In one place[1] he makes the statement that the Mandans formerly lived in thirteen or more villages, each had a name and they distinguished themselves thus: 1. Pheasant Village, 2. Village of (the people of) the West, 3. Bear Village, 4. Badger Village, 5. Prickly Pear Village, 6. Village of the Sulky Ones, because they separated from part of their nation to come up the Missouri. Here is a notable discrepancy between the stated number of villages and the number of names given. In another place he states[2] that after the first alliance with the Hidatsa the Mandans lived in eight or nine villages: 1. The South Village, 2. The Greatest Village, 3. The Scattered Village, 4. The Littlest Village, 5. The Village of Those Who Turn Back, 6. The Village on the Hill, 7. The Village of Those Who Separate their Legs, 8. The Village of Those Who Tattoo Themselves.

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Thus the authorities not only disagree with each other, but even vary their own statements. Verendrye says six and a number of smaller ones; McKenzie, nine; Lewis and Clarke, from six to thirteen, at various times. Through all of these accounts, nine seems to be the favorite number, but it might hardly be safe to fix it at that. Perhaps the discrepancy can best be accounted for by remembering Verendrye's story of the summer villages, and the fact that Maximilian speaks of villages in the woods occupied for a short time during the worst of the winter. Another factor which may have a bearing on the matter is the old tradition mentioned by Maximilian[3] that the Hidatsa lived near the Mandans for a few years after their arrival, and before moving up to the Knife River. Considering these facts together with the prevailing traditional number of nine, it might be concluded that at the time of residence on the Heart River there were nine actual fixed villages, and an uncertain number of smaller and less fixed camps. This can be only regarded as a hypothesis.

Archaeological evidence is also conflicting on this subject. Lewis and Clarke noted a number of the remains in passing, and probably a series of quotations from them will best bring out

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[1] Op. cit., p. 272.

[2] Ibid., p. 436.

[3] Ibid., p. 435.

3: Will and Spinden E-5 (1905) 1906

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172 the points of location which should be emphasized. In Allen's Lewis and Clarke are the following entries:

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361 "Oct. 19. 1804. We camped on the north opposite to the uppermost of a number of round hills. . . . . . Near to one of these moles on a point of a hill ninety feet above the plain are the remains of an old village. . . . . . "

"Oct. 20. After . . . . . twelve miles we encamped on the south at the upper part of a bluff . . . . . immediately below . . . . . . are the remains of a village formerly occupied by the Mandans."

"Oct. 21. At two miles from our encampment . . . . . ruins of a second Mandan village . . . . . on the north at the foot of a hill in a beautiful . . . . . plain . . . . . nearly opposite are remains of a third village on the south . . . . . another . . . . . two miles further on the north. At a distance of seven miles we encamped. . . . . "

"Oct. 22. We passed an old Mandan village on the south . . . . . at four miles another on the same side . . . . at six we reached an island about one mile in length, at the head of which is a Mandan village on the north in ruins . . . . . . at eight miles are remains of another Mandan village on the south."

Here is an actual description and more or less definite location of nine seemingly very noticeable village sites.

Maximilian's[1] notes on the subject come next with the following extracts: " . . . . a chain of hills called the mountains of the old Mandan village, for one of their villages had been where the river cuts the chain. . . . . It was at the foot of a chain of hills on a fine plain not far from the river. . . . . . . Here began the Mandan territory . . . . . [Later on same day] We cut wood near the mouth of Apple Creek."

"Next day we came in sight of Square Buttes. . . . . After eight hours we came to an old Mandan village on the right in the prairie."

The archaeological information collected by this party increases the uncertainty. No complete archaeological survey was attempted and the location of sites other than those personally visited will not be discussed. The accompanying map

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[1] Op. cit., pp. 19 to 23.

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(Map I)[1] marks roughly the sites as judged from the above extracts from Lewis and Clarke, and more accurately the sites which have been actually seen in the course of this investigation. The first site encountered in the above extracts is approximately on the south bank of Apple Creek above some round, clay buttes. This one was not visited. The second site is on the west side of the river at the base of the hill on which the infantry post of Fort Abraham Lincoln was formerly located. This site was examined, and it is accurately marked on the map. Of the next two sites one on the east and one on the west, but little can be said. The first certainly is on the outskirts of the present town of Mandan. The other one possibly has disappeared in the river. At all events, the only corroboration found, after having been over the country, is a small site on the point of a bluff about one mile above the Northern Pacific Railroad bridge over the Missouri. It is not so plain as the others, nevertheless on a cursory investigation and excavation by our party it showed signs of lengthy occupation. The next site mentioned by Lewis and Clarke is stated to be "two miles further on the north and a little off the river." Of this no trace has been found, unless it be that at the Sperry farm. This one is about five miles above the other site; it is on a bluff, bordering what was formerly a creek, and is about two miles from the river. In some respects this fills the requirements, in point of distance, however, it hardly fits with the account.

Of the locations of the three other villages on the west side of the river Lewis and Clarke's account does not furnish sufficiently accurate details, although a careful examination of the ground might make them clear. Only one more site is mentioned by Lewis and Clarke on the east, and this, it is believed, is the one where the excavations hereinafter described were made. This last site was by their reckoning about thirteen miles above their Fort Abraham Lincoln camp, at the head of an island. The site at which the excavation was carried on is probably fourteen miles north of their camp. It is at the head of a broad place in the river where there is a small island now. Mr. Burgois, who has lived in the neighborhood for a number of years, says that formerly the island was much

[1] [See facing p. 85, cat. 116 — Analyst]

172 175 361 larger. This is the only widening of the river where an island could form within the distance stated, and lastly the site is in a very conspicuous situation on the top of a hill. The earthworks are larger than is usual around the other sites, and in every respect the place is apt to attract the attention of any one passing up river.

At a distance of some three miles further up on the same side is another village site not quite as large. It is hidden now from the river by cottonwoods which have grown up in front of it; the site lies on the very edge of the first bench in a level plain. The finds there agree with those in the other places and it is very evidently a remnant of the same people. This gives four known sites on the east side.

On every hand thus it is evident that there is great uncertainty. The number of sites is far from certain. The sites cannot be absolutely identified even when historically described — neither locations nor distribution according with descriptions given. The fact that the Mandans have a tradition of the Hidatsa living near them for a while also adds to the confusion. But the tradition as given by Maximilian[1] states also that the Hidatsa were a roving people, and non-agricultural on their arrival. Consequently there would probably be little difficulty in distinguishing their sites. Moreover, the Hidatsa are supposed to have stayed there only four or five years, and then to have proceeded up to the Knife River.

One more phase of the location question remains to be discussed. The last disturbing feature in identifying the sites is the wandering of the Arikara who, as has been said, also left a number of village sites. It is probable, however, that the Heart River area was never occupied by them for any actual settlement. For this belief a number of reasons may be given. The Arikara are a branch of the Skidi Pawnee which split off through some quarrel and started off independently, reaching in the course of time the Missouri River and ascending it by stages. Their villages were stationary and much like the Mandans but none of them seem to have been as permanent as those of the latter. This fact offers one reason for supposing that such

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[1] Op. cit., p. 435.

3:Will and Spinden E-5 (1905) 1906

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Heart River sites as were seen were not of Arikara origin, for the deposits in each place show a very long period of occupation. If the Arikara had just separated from the Pawnees at the time of Verendrye's visit, they certainly did not have time to accumulate such deposits before Lewis and Clarke came.

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However, a brief consideration of what is known of their movements is still worth something though the evidence is negative. Verendrye[1] gives the following account of the Arikara: —

"At a day's journey from the last of these were the Panana . . . . . then the Panani. These two nations . . . were now at war for four years, had always . . . . been closely united . . . "

This extract seems to place the time of the separation at about 1734. The Arikara were seen [illegible] 1804 when Lewis and Clarke visited them, and at that time [illegible]ved in three villages at the mouth of the Grand River. O[illegible]e way up, both on the Cheyenne and Moreau rivers old Arikara villages were noted and placed on the map. Later in 1812 Bradbury in the description of his journey says that they still occupied the Grand River site. However, during the period before Lewis and Clarke's arrival other moves had been made. Lewis and Clarke[2] state that after smallpox destroyed most of the Mandan nation, reducing them to one large and some small villages they moved up into the Arikara country where they lived many years in peace.

Alexander Henry[3] says that the Arikara and Mandans lived together in the same village thirty leagues down; they separated and the Arikara went down, the Mandans up till stopped by the Hidatsa.

Maximilian[4] states that thirty-seven years before, when Charboneau came, the Arikara lived on a point just above the largest Mandan village. After that they moved back down stream and the Mandans plundered their village.

The only point in all the above which seems to connect the Arikara with the Heart River sites is the statement by Henry that the two nations lived together at thirty leagues south. The circumstances of this seem to point to the site opposite Washburn, and it may be safe to consider his estimate of the

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[1] Op. cit., 19.

[2] Nov. 12, 1804.

[3] Op. cit., vol. 1, p. 334.

[4] Op. cit., p. 338.

172 distance as an error in stating the story. The more so since
175 details coincide with accounts of the Washburn site.

Reviewing the whole question of the Arikara's locations,
361 there are:—a site on the Cheyenne River, one on the Moreau River, one on the Grand River, and one some fifty miles above the Heart River, near Washburn. In 1738 they were on or near the Grand, and there again in 1804. Maximilian says that before the smallpox the Mandans feared no one, but that the Arikara and the Cheyennes were their natural enemies. Taking into account the last statement and also the fact that during the period of sixty-six years the Arikara established such a number of villages, and, moreover, that the Mandan alliance with the Arikara is placed in all the traditions as after the fall of the Mandans. it may be safely stated that the Arikara are not responsible for any of the Heart River sites.

In the discussion the location and number of the sites has now been treated and there are points which should be emphasized. The only facts which are certain are that the Mandans formerly had at least six large villages in the neighborhood of the Heart River which were abandoned between 1772 and 1804, and that there are at least six old village sites which can still be located in that region. In addition there are the following which while not definitely proved, may be regarded as highly probable: that the Heart River sites are identical with the Mandan ones; that they cannot be attributed to the Hidatsa with any reason; and lastly that there is no proof for, and much circumstantial evidence against the belief that any of this group of sites is due to the Arikara. Details of culture, historical evidence, and archaeological finds, will reënforce belief in the mutual identity, and from now on all sites of the Heart River area will be considered as of Mandan origin.

SECTION I.

HISTORY, LIFE AND CUSTOMS.

ORIGIN: — From the previously mentioned historical sources 173
an attempt will now be made to give a brief account of the
Mandans as they were seen by travellers. First, however, comes 167
the discussion of their origin and migration, for the most part 174
theoretical, but supported to some extent by evidence. The Mandans had a tradition of coming out of the earth, nothing unusual in itself, but in relating this story they also told Maximilian that they came from the east out of the earth and struck the Missouri at the White Earth River in South Dakota. The eastern origin corresponds with that of the rest of the Siouan stock to which the Mandans, both linguistically and to a considerable extent in their culture, belong. The Ohio valley would seem to have served as a point of dispersal whence the Plains members of the Siouan stock are supposed to have moved in four successive migrations. The earliest group to leave consisted apparently of the Mandan, Hidatsa, and Crow, and of these the Mandan were probably a number of years ahead of the other tribes. The Mandans have fairly vivid traditions of the coming of the Hidatsa many years after the former had established fixed villages on the Heart River.

They describe[1] the Hidatsa as a wild wandering people whom they taught to build stationary villages and to raise corn, pumpkins and other vegetables, and who soon moved up to the Knife River. If this tradition has any truth in it, it seems to establish the Mandans as the first nation in the successive Siouan migrations. The order of migration is placed as follows:—

1. Mandan, Hidatsa, Crow.
2. Iowa, Otoe, Missouri, Winnebago.
3. Omaha, Ponca, Osage, Kansas, Kwapa.
4. Dakota, Assiniboine.

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[1] Maximilian: p. 435.

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In the seventeenth century, the Dakotas, the last migrants, were already in Wisconsin and Minnesota. Part of group three was already on the plains when De Soto made his journey in 1542. If some of the members of group three were already established on the plains in the sixteenth century, the establishment of the Mandans on the Missouri presumably occurred at least as early and probably earlier. Thus the beginning of the westward movement of the tribe may be carried back into the fifteenth century. That the separation occurred thus early is not difficult to believe when one considers the wide divergence of language which has taken place between the different groups. To this evidence of an early establishment on the Missouri River must be added the fact that in the traditions and religion all episodes and beliefs are localized about the region of the Heart River. The gods created the Heart River region first, and there they soon placed the Mandans. Few of the traditions go further back than the Heart River period, and little of the mythology has reference to any other region. Archaeological evidence certainly corroborates this tradition of long occupation, for at the Lincoln site the refuse forms a talus deposit at least three feet in thickness and extending thirty feet from top to bottom. At the site at which investigations were carried on the ground at every point showed potsherds and refuse to a depth of two and one half to three feet. The whole area of the village shows this accumulation, sometimes even deeper, a condition of affairs which only years of occupancy could produce.

It has been shown that the Mandans lived on the Missouri for many years and that previous to this they probably occupied some portion of the Ohio valley. The next question is how did they make the journey between the new and the old home. Did they cut across direct to the Missouri, as the second group probably did, or did they lead the way for the third group down the Ohio to the Missouri, and thence upward along the river? This question cannot as yet be satisfactorily answered. Catlin claims to have seen remains, similar to those on the Heart River, scattered all along the Missouri from St. Louis up. Clarke describes an ancient fortification near Bon Homme

Island in South Dakota and was told by traders that there were 174
a number of others about that country. Maximilian was told
that the Mandans first touched the Missouri at White Earth 167
River in South Dakota, with which might be connected the reported existence of the remains of circular earth lodges in southern Wisconsin. Here are arguments for both theories; up to the present, however, the matter must remain unsettled until some careful investigation decides it.

HISTORY: — In the earliest historical accounts the Mandans 175
were firmly established in stationary villages in the neighbor- 361
hood of the Heart River. Verendrye says that they lived in six large villages along the Mandan River, were a large and powerful nation and feared none of their neighbors, all of whom they dominated by their superior culture. Their manufactures [439]
were almost necessities among the other tribes, and in trade they were able to dictate their own terms. The forts he said were impregnable to Indians, being very well fortified. Verendrye visited the smallest village in which he said that there were one hundred and thirty houses by actual count. His son, who visited one of the larger villages, declared that it was twice as large, judging from which it can safely be assumed that there were at least one thousand houses in the several villages. Lewis
and Clarke declared that in the two villages of one hundred huts [161]
there were three hundred and fifty warriors; figuring at this rate there should have been at least fifteen thousand Mandans in 1738 dwelling prosperously in large and well-fortified towns.

For the next sixty-six years there is little information but 175
their own tradition. Judging from McKenzie's narrative they continued prosperous and powerful up to 1772 at least. He declared that at that time they lived in nine villages, large and near to each other, and could muster fifteen thousand warriors. The latter estimate is probably large, but the whole statement seems to show that no misfortune had come to them at that date. Their remaining history is summed up in their own tradition as related to Lewis and Clarke, Maximilian and others.

This tradition runs as follows: — Formerly they lived hap- 175
pily and prosperously in nine large villages on the Missouri 173
near the mouth of the Heart River. Six or seven of these vil-

175 lages were on the west side and two or three were on the east
173 side of the river. Maximilian gives names for fourteen villages which have been already quoted. For a great many years
[164] they lived there when one day the smallpox came to those on the east side of the river. While this smallpox was still rife, the Sioux attacked and destroyed the east villages. The survivors then proceeded up the river some forty miles where they all settled in one large village. Soon after the smallpox reduced the villages on the west to five, and still later the five went up to where the others were in the neighborhood of some Arikara, and settled in two villages. A great many people had been destroyed and they were now no longer strong and fearless. They made an alliance with the Arikara against the Sioux. So far the tradition is our only authority, and all this had happened before the year 1796.

175 In Henry and Schoolcraft is the statement that in 1796 the two villages on the south united, and both the one on the south and the one on the north moved up river some distance. From this time on there is a nearly continuous chronicle. Lewis and Clarke found the two villages one on each side and about fifteen miles below the Knife River. At that time both villages consisted of forty to fifty lodges and, united, could raise about three hundred and fifty men. Lewis and Clarke describe them as engaging in continual warfare with the Arikara and Sioux against whom they united with the Hidatsa. The description given by Lewis and Clarke agrees with the conditions some two years later when Henry visited them.

Thereafter no particular event marks the history of the Mandans for some years. The Arikara went up and lived near them again for a time, but soon went back to the Grand River. Catlin found them in practically the condition in which Lewis and Clarke saw them, and so did Maximilian. Maximilian says they still lived in the two villages; the largest on the south side was Mih-toutta-Hangkouche and consisted of about sixty lodges. The smaller one, Rouhptare, was on the north and consisted of thirty-eight lodges. The villages were still fortified, though poorly, and there had been little change in the condition of the people.

In 1837, however, another great calamity came upon the 175 Mandans. Again smallpox attacked them, raged for many weeks and finally left but one hundred and twenty-five souls.[1] [164] These were taken in by the Arikara with whom they intermarried; finally they separated, again forming a small village of their own at Ft. Berthold. In 1850 there were three hundred and eighty-five living, but these were very largely of mixed blood. To-day there are only a few of the full-blood Mandans left, although the latest official returns give a total of two hundred and forty-nine. The culture has changed, the language has changed, and as a nation the Mandans are practically extinct.

PHYSICAL CHARACTERISTICS:—A discussion of the physical 142 characteristics of the Mandans is rather interesting in view of the fact that so many tales of their being a white race were circulated. Verendrye was told by the Assiniboine that he was on the way to visit people white like himself. The Assiniboine word for the Mandans, *ouachipanne*, was the close relative of the Mandan word for white man, *ouachi*. Catlin became convinced of the white origin of the Mandans and Verendrye and Henry both commented on their light complexions.

Verendrye said he expected to see a different sort of people but they differed little from the Assiniboine. Then later: "This nation is mixed white and black. The women are fairly good looking especially the white, and many have blond hair. . . . . . The men are stout and tall . . . . . with a good physiognomy. The women have not the Indian physiognomy. . . . . ."[2]

Lewis and Clarke did not mention any particular difference between the Mandans and other Indians of the region, although Catlin relates that when he left St. Louis to ascend the Missouri, Governor Clarke told him that he was going among a strange people, half white. Henry, however, did notice some peculiarities in the Mandan physique. He says[3] that in general the Mandans had not the coarse hair of Indians, it was finer, rather inclining to dark brown, and some had fair hair. The eyes of the Mandans were not as black as usual, but brown and some

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[1] Schoolcraft: vol. III, p. 254. [2] Op. cit., p. 21. [3] Op. cit., vol. I, p. 341.

142 grey. He also says there were several children whose hair was perfectly grey, these were mostly girls.

Catlin[1] possibly exaggerates the physical differences. His account states that their personal appearance at once showed them as more than savages; there were many shades of complexion and hair; many women had white skin with hazel, blue, and grey eyes; they showed every shade of hair except red; some had hair perfectly white or a silvery grey, women more than men; the grey hair was very coarse, while the other hair was fine and soft.

Maximilian took particular pains to ridicule the theory of white origin and especially that of Welsh origin. But even he admits the peculiarity of complexion seen at times. On this subject he said that they were usually brown or copper colored, some were yellow or whitish. When clean there were a number who were nearly white with red cheeks; they had long coarse hair usually black, but many children had brown hair; there were families with grey hair; one family contained members with brown, black, grey, and white hair and eye-lashes.[2] So much for color. There can be little question that there was a tendency toward light complexion among the Mandans, and all of the authorities, even Maximilian, express the opinion that this was not from contact with the whites. Among the Hidatsa and Crow as well is found the phenomenon of grey and white haired women and children, but there is no account of the brown, soft hair, and light skin further described by the earliest visitors to the Mandans. As to the cause of this light skin [143] which appeared now and then it is difficult to decide. It seems, however, to place the Mandans among the tribes where partial albinism was of frequent occurrence. It is almost needless to say that there is absolutely no trace either in language or in physical characteristics of any European origin or admixture.

141 Next is the question of size and general physique. Verendrye[3] says:—"The men are stout and tall, generally very active, fairly good looking. . . . " In a note appended to the location of an old Mandan village, on one of Lewis and Clarke's maps are the following words, "here human bones of large size."

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[1] Op. cit., vol. I, p. 93.

[2] Op. cit., pp. 374-5.

[3] Op. cit., p. 21.

Henry says,[1] the men were tall, stout and well built. Maximilian also testifies along the same line: "Most of the Mandans are vigorous men, strong and large."[2] And adds later that they were a strong race, a little above medium height, possibly not as large as the Minnetarees, robust, with broad shoulders.[3] Judging from the information so far, the Mandans should be considered a large race, but on the other side there is the statement from Catlin[4] that the stature of the Mandans was below the ordinary, but they were well proportioned. All of these observers but Catlin thus speak of the Mandans as above average height. 141

For a further description of the Mandan physique there are only a few words from Maximilian,[5] who says that they had a less aquiline nose than their neighbors, less prominent cheek bones than the Dakotas; thin noses and straight; long, narrow eyes of a deep brown, a little raised and contracted at the inner corner; large mouth, large angular jaws, various shaped heads, but foreheads no lower on the average than among Europeans. 142

VILLAGES:—The Mandans, as has been said, were a sedentary tribe and lived in fixed villages for long periods of time. In these villages they built lasting lodges of a type similar to those of the Arikara, Omaha, and other tribes lower down the Missouri, though with small differences in the details of construction. The villages were usually well fortified, neat and orderly in the early days, but a considerable change seems to have come upon the people after their misfortunes, for there was much less care taken in the arrangement and fortification of the villages in their later locations. The first description of the Mandan village is from Verendrye, who makes it appear almost a model town. As this is the only description of the Mandan villages during the prosperity of the nation,[1] a summary of his account is here given:[6] 361 [171]

"Many people came to meet us but nothing in comparison with what appeared on the ramparts and along the trenches. .... Their fort can only be gained by steps or posts which can be removed when the enemy threatens. .... If all the forts are alike, they may be called impregnable to Indians. . . . . . Their fortifications are not Indian . . . . . Their fort is full of caves in which are stored such articles as grain, food. . . . . . . I walked about . . . . . their fort . . . . . . there were one hundred and thirty of them [huts]. All the streets, squares and huts resembled each other . . . . . . The streets and squares very clean, the ramparts very level and broad; the palisades supported on cross-pieces mortised into posts of fifteen feet. At fifteen points doubled are green skins which are put for sheathing when required, fastened only above and in places where needed. As in the bastions . . . . . . at each curtain well flanked . . . . The fort is built on a height in the open prairie with a ditch upward of fifteen feet deep and fifteen to eighteen feet wide . . . . The Sieur Nolant and my son arrived [from the other village] . . . . . . The fort is on the bank of the river, as large again as this. The squares and streets were very fine and clean. Their palisade is in the best order and strength . . . . . . built in the same fashion as the one in which we were. . . . . . All their forts were alike . . . . . . some much larger than others."

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[1] Op. cit., p. 341.
[2] Op. cit., vol. I, p. 29.
[3] Ibid., p. 373.
[4] Op. cit., vol. I, p. 95.
[5] Op. cit., p. 37.
[6] Op. cit., pp. 17-23.

[1] [i.e., about 1738. See p. 86.-- Analyst]

There is a little note from Schoolcraft[1] to add, who says that about 1750 the Mandans lived on the Heart River in nine villages surrounded by circular walls of earth, with no ditches. For this information, however, he cites no authority.

For the later Mandan villages there is something of a description from most of their visitors. Lewis and Clarke have very little to say on this subject, but Henry, Maximilian, and Catlin, all give good descriptions. Verendrye mentions squares and streets as though the early villages were arranged in some regular manner, while the very opposite seems to be true in the later visited places.

A composite description drawn from the various sources will perhaps give the best possible picture of the larger village below the Knife River. The whole town, according to Maximilian, had a very small diameter. It was situated in an extensive plain on a bluff about forty or fifty feet high on the south bank of the Missouri. From a distance it looked like a mass of mole hills, with numbers of grass blades growing between, these were the scalp poles and effigies of the gods. The 361 ground on which the village was located was chosen for defence, the bluff on the river side went down perpendicularly, and the village was on a point jutting out into the river so that only one side needed protection. Across this point was a palisade 361 and inside this was a ditch, three to four feet deep according to 712 Catlin. The palisade, he says, was of timbers eighteen feet high and one or more feet in diameter, set far enough apart to allow of shooting between. The warriors stayed in the ditch in defending the palisade. Concerning this palisade Henry and Maximilian both mention that it was in very poor repair indeed, but Henry adds that he was told it could be put in good condition very soon, every person in the village lending a hand. There is yet no mention of bastions and ramparts such as Verendrye refers to, but Maximilian[1] describes something similar. He says that at the corners of the palisade in four places were arcs or bastions, which formed an angle open toward the village, and said to have been built by the whites. These were intrenchments in the form of an arc, covered with a matting of willow and having loop holes.

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[1] Op. cit., vol. III, p. 248.

On entering the village it seemed to be a mass of circular 342 houses from forty to ninety feet in diameter, set down haphazard closely crowded together. The houses were of earth with a smooth coating of pounded clay on the top, where most of the inhabitants were usually stationed. Before each house 343 was a scaffold, fronting the covered entrance. These scaffolds were six feet high, twenty feet long and ten broad[2] and were used for hanging up corn and meat to dry. They had a good floor, also, which was covered in the fall with drying beans. The staging for drying corn and meat was made as follows:[3] posts were set up on the scaffolds themselves, across these rafters were laid, and upon these cross rafters or poles the corn, meat and sliced squashes were hung. Before almost every 778 house were one or more poles about twenty feet high, to which images of the gods, or sacrifices to them were attached.

In the center of the village was a large open space of about 000

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[1] Op. cit., p. 81.

[2] Henry: vol. I, p. 340.

[3] Ibid.

In the center of the village was a large open space of about four acres[1] and in the center of this was the "Ark of the First 361
Man." This was in the shape of a hogshead, of planks and 778
hoops.[2] It was open above, the planks were embedded in the ground, and the hoops were branches tied around to hold these together. The Mandans called this the Big Canoe[3] and in it were some of their greatest medicines. This open space was the seat of all their festivals, dances and ceremonies, and here also they played their games of Chungkee or Skohpe. The space was closely surrounded by houses placed at equal distances apart and all facing the center. The largest of these [346]
lodges on the south side of the area was the medicine lodge, and on a pole above this was a figure of skin, with a carved wooden head, which represented the Evil Spirit.

About one quarter of a mile or less to the south of the vil- 361
lage was a race-course; a hundred or more scaffolds on which the dead were deposited; slides for their games were also [764]
made outside the palisades. The ground about the houses was honeycombed with pits and caches in which most of the food [351]
and many of the valuables of the inhabitants were stored. The house roofs formed a general repository where bull boats, buffalo skulls, pottery, sledges and people were scattered promiscuously over the rounded surface, around the edge of which Bradbury says they built a sort of low railing.

HOUSES:—The houses themselves were many times de- 342
scribed, sometimes with considerable variation, and it is highly probable that there was more or less variation of construction in the minor details. They were distinguished from those of the Arikara in that the ground was first excavated, and that [171]
they were rather hemispherical, whereas the houses of the latter were more conical, like those of the Pawnee. Catlin[4] places the average size of the houses at from forty to sixty feet in diameter, depending on the size and importance of the family, and Henry[5] tells us that the one in which he himself stayed was ninety feet in diameter.

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[1] Henry: vol. I, p. 338. "Sixty feet across," Maximilian: p. 356; "One hundred and fifty feet," Catlin: vol. I, p. 88.

[2] Catlin gives this as eight to ten feet high, Maximilian as four or five.

[3] Catlin: vol. I, p. 88.

[4] Op. cit., vol. I, p. 81.

[5] Op. cit., vol. I, p. 338.

The first step in the building of houses was the excavation of the ground where the floor was to be, to a depth of about one and a half to two feet, the earth being thrown out in a bank all around the rim of the excavation. Around this circle, against the edges were placed eleven to fifteen great posts, four to six feet high. Logs were laid across from one to another of these, and on the outside were slabs slanting in and resting against these cross logs. This arrangement is shown in Morgan's diagram reproduced in Figure 1. Also on these cross-beams rested the rafters. These were long poles[1] six to ten inches thick, the small end pointing in, placed very close together. Four or five[2] great posts, five feet in circumference, fifteen feet high, and fifteen feet apart formed an inner circle. The rafters rested on large squared beams which were laid horizontally on this inner circle of large posts. Catlin says that this inner circle of large posts supported the rafters at about their center. Henry says that these posts supported the end of the rafters, and the remaining space was filled by placing timbers criss-cross over the cross-beams leaving a smoke hole in the center. On top of the rafters was placed a matting of willows, six inches thick, fastened together compactly and secured to the rafters. Over the surface then one to three feet of earth was placed, and the sides were banked with earth three or four feet high, and four feet or more thick. Catlin says that the whole surface was then covered with clay, hard and tough, which was impervious to water.

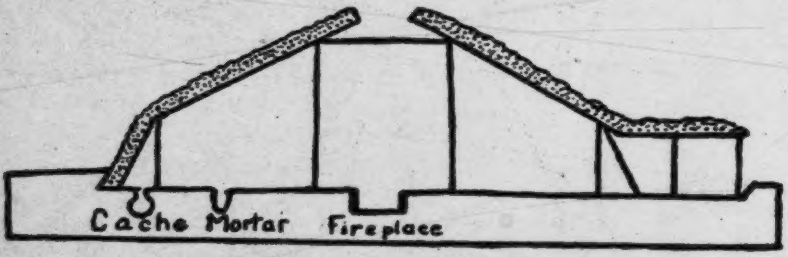

FIG. 1. MANDAN HOUSE. (After Morgan.)

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[1] Henry gives their length as twelve to fifteen feet.

[2] According to Catlin, Maximilian and Henry both give four.

342 The doorway was five feet broad and six feet high, with a covered way of the same height, but seven feet broad and about ten feet long. The door itself was a raw buffalo hide dried on a frame which was hung from above on a cord, at night this was barricaded, and when the family was away the porch was closed with branches and sticks. This porch was covered with earth like the house itself and led downward to the lower level of the floor. It is not shown in any of Catlin's drawings and he does not mention one except in the medicine lodge, there he says it was eight to ten feet long, was hidden with a double screen, and guarded by armed sentinels.

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353 Verendrye speaks of the division of the house into compartments and we find that the same thing existed when Henry was there. Lewis and Clarke, and Gass also mention that one part of the interior was cut off and used as a stable for the horses. Catlin, however, mentions no such cutting up of the interior, nor do his pictures show anything of the sort, but Maximilian, who visited them in the winter, gives a diagram of the winter house showing several compartments; this diagram and its key is reproduced in Figure 2. The main interior arrangements of the house in spite of the discrepancy on these latter points are agreed on by all. In the center under the smoke hole was the fireplace, a round hole five feet in diameter and a foot or more deep. This was curbed with stones placed upright about the edge.[1] Around the walls was a series of beds and about the fire

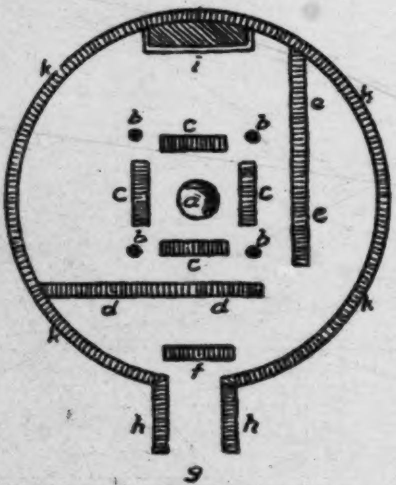

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FIG. 2. MANDAN HOUSE.
(After Maximilian.)

a, Fireplace; *b b b b*, Central posts supporting roof; *c c c c*, Seats; *d d*, Screen or wind break; *e e*, Partition behind which horses were kept; *f*, Door of skin; *g*, Entrance; *h h*, Covered porch; *i*, Bed; *k k k k*, House walls.

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[1] Maximilian, p. 287.

over which a pot hung, were low seats of flexible willow boughs. 353

Henry's description[1] of the interior is probably the best, and is substantially as follows: on entering you first saw a kind of triangular apartment on the left fronting the fire, and leaving an open space on the right; this was to hold firewood. The partition was of squared planks twelve feet high, well calked to keep off the cold from the door. Between this and the fire was a space where the master sat on a mat of small willows supported as a sort of sofa and covered with a buffalo robe. On this the man sat all day and received his friends. To the left of the host began a range of beds. The master occupied the first bed with his favorite wife, then a wife occupied each of the next few beds, then came the young people. These beds were all built alike[2] and adjoined each other lengthwise. At the bottom of the hut facing the master stood his medicine stage containing everything he valued, and most important among them was a pair of bulls' heads daubed with earth. Here also hung his arms, ammunition, scalps and the like. Next to the stage was the mortar, fixed in the ground, and a pestle. The rest of the hut from there to the door was separated off for the horses at night.

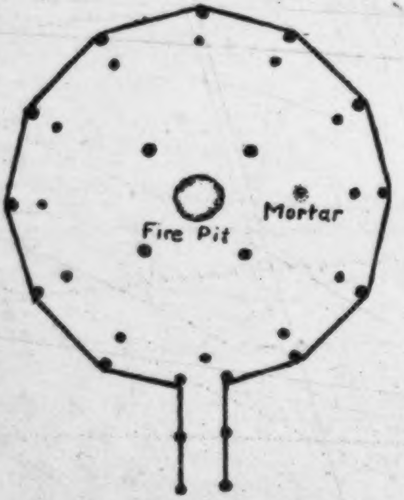

FIG. 3. MANDAN HOUSE.
(After Morgan.)

To this description might be added a few details from Catlin. He says that the cabins usually held a family and all its connections, from twenty to forty people. The beds were raised about two feet from the floor, were usually ten or twelve in number, four or five feet apart, and went all the way around. [592]

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[1] Op. cit., vol. I, pp. [illegible]-40.

[2] See for description, p. 112.

353 Between every pair was a large post. An elevation showing some of the details is reproduced from Morgan in Figure 1, and a ground plan, in Figure 3.

251 171 The sedentary character of the Mandans and the fact that they practiced agriculture led to the development among them of several cultural features not found among the purely hunting tribes. In common with most sedentary tribes they made use of caches or storage pits. Henry[1] gives a description of them saying that, in the fall after harvest, the corn was dried, shelled and put in deep pits. These were about eight feet deep, with a mouth just wide enough for a person to get in, but the inside was hollowed out larger and the sides and bottom were lined with straw. The cache contained twenty to thirty bushels of beans or corn where it kept for several years. The caches were scattered everywhere about the village. Catlin mentions caches, saying that they placed corn in pits six or seven feet deep, jug shaped, and tightly closed at the top.

291 DRESS:—The dress of the Mandans in general was much like that of their neighbors, at the later period of their history at least. There were however some minor differences. Verendrye says that at his visit the men went naked, except for a carelessly worn buffalo robe—not even wearing a breech cloth. The women wore very little as a rule, their only article of attire being an apron about the waist, a hand's breadth wide and a foot long. But he adds later that some of them wore a gown of very soft deerskin. It is probable that other articles of dress were borrowed from their neighbors as time went on.

515 302 The men and women both began the day with a bath, after which the body was carefully oiled with castoreum. For any ceremonial or feast the body was also painted in colors, these being mixed with grease. After the bath the face and hair were nearly always whitened. 291 The men in Maximilian's time usually wore a breech cloth, of black and white cloth, and moccasins with little or no ornamentation. The upper part of the body was usually naked as they seldom wore the leather shirt used in many other tribes. Even in the winter, Maximilian says they wore only the buffalo robe over the upper half of the

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[1] Op. cit., vol. I, p. 360.

body. The small boys went naked but the girls wore a leather 291
dress similar to those of the older women. The woman's
dress was the buck-skin tunic which went just below the knee,
a girdle held it at the waist, the sleeves were open and the base
of the skirt was often fringed. Bead necklaces and earrings [301]
were worn, and leggings which did not reach to the knee. The
men also wore leggings which were the counterpart of those [171]
found among the other plains tribes.

Although the Mandans ordinarily dressed very plainly, yet 292
for the feasts and ceremonies they arrayed themselves as gor- 171
geously as did any of their neighbors, and in practically the
same way. Then they wore richly embroidered leather shirts,
moccasins covered with quill work, necklaces of elk teeth, bears'
claws, odorous roots and large glass beads, with fine painted
and embroidered robes, tobacco pouches, quivers, medicine
bags, and all the paraphernalia of the plains ceremonial dress.
Scalps were used as among the Dakotas, ceremonial pipes and
bows were carried. The head-dresses of war eagle, hawk, crow,
and raven feathers were worn by members of different societies
and occasionally the head-dress of two small polished pieces of
buffalo horn was worn. This last was found frequently among
the Dakotas. Antelope and deer hoofs were used often as a
fringe of bangles along the shirt hem or the sides of the leggings.

The Mandans had a peculiar method of dressing the hair, 302
unlike other Siouan tribes but very much like the Arikara. [171]
The hair of the men was allowed to hang down to the
thighs, or even to the knees, it was separated into a number of
strands, each of which was stuck along its whole length, two or
three inches apart, with lumps of mixed glue and colored clay,
making nearly solid plaits one and a half inches thick. Often-
times these plaits were pieced out with beaver skin strips or
hair from scalps. One lock of hair hung down forward over the
nose, and this was unornamented except for a red ribbon tied about
it. There were two copper strips covered with blue and white
glass beads woven with the hair on the sides. These hung by
one end and were also decorated with dentalia. On the back
of the head was an ornament, flat, three or four inches thick, of
wood or twisted metal wire. It was fastened to the hair and

3: Will and Spinden E-5 (1905) 1906

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302 hung down to the shoulders. It was covered with quill work in different colors. On its top was placed horizontally an eagle [171] feather the base of which was covered with red cloth. The usual Siouan head-dresses were also worn. In every day life, however, Maximilian says the hair was knotted up in a 304 tuft. The Mandan men tattooed, but never on more than one half of the body. Usually the right breast and upper arm was tattooed with black parallel lines, accompanied by a few other figures. Occasionally the fore-arm and some of the fingers were tattooed. Occasionally also the women tattooed, but to only a small extent. Ermine was used in nearly all of their finest dresses, and tails of other animals as well as different sorts of bird feathers had especial signification in ceremonial or war 171 costumes. Altogether, as Catlin says, the dress of the Blackfeet, Sioux, and Mandans was practically alike. The great noticeable difference seems to be that the Mandans had much less regard for clothing than did most of their neighbors, they had a tendency toward simple apparel, and the buffalo robe was their original and only absolutely necessary garment.

411 Weapons:— The arms of the Mandans as well as their other culture features were much like those of their neighbors. They used the customary things — bows and arrows, lances, shields, knives, and tomahawks, and had in addition a peculiar weapon of their own called a bow-lance. The knives and arrow points were at first of stone as were the axes and tomahawks, but stone implements soon fell into disuse when steel ones were obtained. The Mandan bows were usually of elm or ash wood, [321] and rather short, with cords of twisted sinews. Occasionally, however, a bow of bone or horn was seen. Catlin describes such a one. It was short and had a sinew backing, while the cord was made of three twisted sinews. With the bow was usually a quiver of mountain lion, wild-cat, or wolf skin, the whole hide being used. The arrows of the Mandans were much better made than those of their neighbors. They were feathered with hawk and eagle feathers which were attached in a short spiral, a red line wound round the arrow in a spiral from barb to base. There were hunting points and war points: the for-

mer unbarbed and securely fastened to the shaft, the latter 411
barbed and loosely attached.

The lances were two-edged points fastened to a shaft of ash wood, some six or eight feet long, ornamented with tufts of eagle plumes. The knives were at first of stone, but were soon replaced by the European steel ones. The tomahawks were of several sorts and are all duplicated among those of the other Sioux tribes. The shield was an important part of a man's equipment, it was of buffalo hide whitened with white clay and with a large painting of the owner's medicine on the front. The bow-lance [428]
was a purely ceremonial weapon and was passed down from father to son to be used in the dances. Maximilian describes it as a long bow with a spear point on one end, the whole decorated elaborately with eagle plumes and other ornaments.

Manufactures: — The beds of the Mandans were built up 352
from four posts sunk in the earth to form a rectangle of suitable size, with poles lashed across from one to the other, about one foot above the ground. Over the cross poles a green buffalo hide was stretched and allowed to dry, thus forming a springy foundation; around the sides and across the top hides were also stretched, giving the whole bed the appearance of a large box. A small opening was left in one of the sides through which to enter, and the whole interior was piled with buffalo robes. These beds held several persons.

The Mandan boats, bull-boats they were called, also merit 501
a description. They were circular, made over a frame of bent willows, which consisted of two hoops held in position by cross pieces; over the whole a raw buffalo hide was stretched, hair in, and sewed to the upper rim. They were about six feet in diameter and could carry very heavy loads. For a paddle a pole some five feet long was used. It was split up the end where a flat board about two and a half feet long was inserted and bound on. The boat was paddled from a standing position, and made half a revolution at every stroke. This same sort of boat was 171
used by the Arikara and Hidatsa.

For the rest their material culture did not differ greatly from that of the surrounding nomadic tribes, only a brief enumeration therefore of the manufactures and utensils is necessary.

281 Verendrye mentions their skill in making such things as
237 painted ox-robes, deer skin, dressed buckskin, and ornamented
fur and feathers, painted feathers, peltry, wrought garters,
circlets for the head, and girdles. They certainly understood
the art of dressing skins, though perhaps other nations equalled
them. All their visitors speak of the ornamented robes for the
decoration of which porcupine quills dyed various colors, or the
pigments themselves, as paints, were used at first, though beads
[532] came gradually to take their places. The ornamentation con-
sisted usually of representations of animals, and pictographic
records. When leather got wet, it was beaten and rubbed with
white clay which they always carried with them. This kept
the robes soft. Then there were medicine bags, tobacco
pouches, sheathes for knives and bows, all of skin, painted or
embroidered with quills, such as are seen over the whole plains
[231] area. They had leather bridles for their horses, sometimes
embroidered, and used a saddle, similar to that of the Dakotas.
The horses were caught by means of long raw hide lariats which
the Indians made themselves.

534 Whistles were also necessary articles to those belonging to
the societies. Maximilian[1] describes them as "long wooden
whistles at whose lower end an eagle feather on a string dangles."
He says they also had large flute whistles, twenty inches long,
with holes to vary the notes by application of the fingers. Be-
sides these were the war whistles, usually made from the wing
412 bone of some large bird. Other articles of bone, necessitated
321 by the great use of skins, were the bone scrapers, needles and
awls with which each house was profusely supplied.

241 Almost the only agricultural implements which they used were hoes. These were the shoulder blades of buffalo or occasionally of elk, which were cut down and to which a crooked stick was fastened as a handle.[2]

415 Among their cooking utensils, which were used in every hut, were spoons and ladles of bighorn and buffalo horns. Verendrye says some of these ladles held as much as three pints.

286 So far as the accounts go the Mandans did not make any textile fabric, though the Arikara are known to have made

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[1] Op. cit., p. 416.

[2] Henry: vol. I, p. 343.

Garters and belts of buffalo hair.

garters and belts of buffalo hair. But they did make string 000
and willow matting. There is an account of a mat used on the 284
seat before the fire. Henry[1] says that the mat was of small 285
willows of equal size, fastened together by thread of native make passed through each stick about one foot apart. The mats were ten feet long, four feet broad, and the two ends for two and a half feet were raised slanting from the ground and supported by a kind of sofa. Verendrye says they made wicker work very neatly, flat, and in baskets.

The Mandans used snow-shoes which were only about two 481
and a half feet long.[2] For their dyes and paints they made use 386
of the following: red obtained from buffalo-berries, black from sunflowers, and yellow from a kind of moss which came from the Rocky Mountains. Blue, red, black, yellow and white clays were also used.

An indispensable article of the full dress was the fan. These 293
were made from the large plumes of the eagle, hawk, crow, and 237
a number of other birds, depending on the rank of the owner.

The Mandan pipes differed a trifle from those of their neigh- 276
bors, being less ornate.[3] They were either of stone, black clay,
or yellow clay painted black. The stone pipes were obtained [439]
mostly from the Dakotas. Pipes with wooden bowls, lined with stone, were also used. The stem was long and round or flat. Catlin describes one pipe as of red steatite (catlinite) with a stem three feet long, half its length wound with braids of porcupine quills. They also had the calumet pipe which will be considered in connection with the ceremonies.

The Mandans and their neighbors the Arikara and Hidatsa 323
made glass beads, an art which they claimed was taught to them by the Snake Indians. They did not make the glass but used glass obtained through the whites. Lewis and Clarke[4] give a short account of the manufacture of beads which is exceedingly interesting. It may be thus summarized. The secret is known only to a few. Glass of several colors is pounded fine, each color separate; this is washed in several waters until the glass stops staining the water. They then take an

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[1] Op. cit., vol. I, p. 340.

[2] Ibid., p. 391.

[3] Maximilian: p. 390.

[4] March 16, 1805.

323 earthen pot of some three gallons, put a platter in the mouth of the pot which has a nitch on its edge through which to watch the beads. Then some well seasoned clay, mixed with sand and tempered with water till of the consistency of dough, is taken, and from it are made a number of little sticks of the size of the hole desired in the bead. These are heated to a red heat and cooled again. The pot is also heated to clean it. Then small balls of the clay are made to serve as pedestals for the beads. The powdered glass, enough for one bead, is dipped into the palm of the hand with a little wooden paddle, where it is paddled into an oblong form, the clay stick is then laid across it and the glass is wound around the clay. The whole is then rolled in the hand till regular. To put in other colors the other end of the paddle stick, which is sharp, is used to make a hole which is then filled with another colored glass. A hole is then made in the center of each pedestal and a bead stuck in it. Then the platter is put in the coals and the pot is inverted over [illegible] wood is placed about the whole and burnt; the beads are watched through the hole in the bottom of the pot, as overheating is harmful. When the beads are whitish red and grow pointed, they are taken off. The clay center is picked out with an awl.

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323 Wooden bowls were used to some extent by the Mandans.[1] They also made very excellent pottery which was mentioned by nearly all their visitors. Verendrye says they had earthen pots which they used for cooking their food. Catlin speaks of earthenware dishes made in great quantities by the women and modelled into a thousand forms. He says they were of a tough, black clay, very hard, and were baked in prepared kilns. Henry[2] says they used large earthen pots of clay which was plentiful near the village. The pots held from one quart to five gallons. Nothing greasy was cooked in them as they claimed it cracked them. The bottoms of the pots were convex and they were set in the fire in a hole in the ashes. Coils of bois blanc fibres with a hole in the center, and of different sizes, were used to stand the pots on when off the fire. Some pots had two ears or handles.

[1] Catlin: vol. I, p. 114.

[2] Op. cit., vol. I, p. 228.

Maximilian[1] also gives a description of the pottery;—"They make pots of different shapes and sizes. The clay is slate-colored and turns a yellowish red in the fire. It is mixed with powdered granite which has been burnt. A large round stone is stuck into the clay which is prevented from spreading sideways. It is polished with a piece of poplar bark. When shaped, it is filled with dry chips, and also surrounded by them on the outside, then burned. They use no enamel on the pots." This pottery has not been made for a number of years, and there are only a few whole samples of the cruder sort in collections. 323

AGRICULTURE: — The Mandans were, above all, an agricultural people, far more so than any of their neighbors. They have a tradition of having taught the Hidatsa how to cultivate the soil, and even the Arikara, who are said by some to have taught the Mandans, were somewhat inferior to the latter in the pursuit of agriculture. The Mandans were dependent on the soil for nearly all of their food, according to Verendrye, in 1738. By the time Lewis and Clarke came, however, they were about on the dividing line between being a hunting and an agricultural nation. They were not the hunters that their neighbors the Hidatsa were, because they were too weak in numbers to venture on long hunting trips. The agricultural ceremonies and dances shared honor with those of hunting, and the Old Woman Who Never Dies, or the Corn Mother, was an important personage in the ceremonial life of the people. 241 [177] [224] [776]

The land about the Mandan villages, smooth river bottoms and very fertile, was always extremely easy to work, and required but the crudest implements. Consequently the cultivation was fairly extensive. Maximilian says that each family cultivated three fields of four or five acres each, which were never fenced. The farms were shifted to a new place when the old area began to yield smaller crops. There seems to have been no attempt at fertilization, and it was hardly necessary in view of the great abundance of good land. Henry[2] gives an animated picture of the Mandan farming operations:

"We passed extensive fields of corn, beans, squashes and

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[1] Op. cit., p. 336.

[2] Op. cit., vol. I, pp. 343 et seq.

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sunflowers. Many women and children were already employed 241 in clearing and hoeing their plantations . . . . On each side were pleasant cultivated spots some of which stretched up the rising ground on our left, whilst on our right they ran nearly to the Missouri."

The Mandans used to raise enormous quantities of produce 351 from these crudely tilled plots, and the most of it was stored 433 away in the caches. Each of these caches would hold from twenty to forty bushels of corn and beans, and the number of them was very large. Maximilian says that there was often from five hundred to eight hundred bushels of corn, alone, in the village. In view of his other statements this seems a very moderate estimate. The supply was large enough so that it was not only eaten by the people, but in the winter was sometimes fed to the horses.[1] Lewis and Clarke speak several times of buying corn of the Indians in lots of thirty bushels or more.

The methods of cultivation among the Mandans, though 241 crude, were still above the most primitive types of tilling. The 221 work in the fields was begun in May. Little trenches were made in rows, the grain was put in these and covered. During the summer the soil about the plants was dug up from three to four times. The harvest usually came in October and for that work every member of the village lent a hand, this being one of the few times when the men took any part in the domestic work. Between the rows of corn, rows of sunflowers were usually planted. The only noticeable feature in this description is the fact that the garden plots were cultivated and cared for during the summer, when most of the semi-agricultural tribes lower down the Missouri were absent on long hunting excursions.

The latitude of the Mandan villages required very hardy and 241 quick-ripening vegetables; and we find that the Mandans had perfected a number of plants suited to the cold and dry climate of the region. The crops were often poor because of drought or early frost, but they never failed entirely.[2] The main products were corn, beans, squashes, sunflowers and tobacco. These were all grown when Verendrye visited them, and were

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[1] Op. cit., p. 389.

[2] Ibid., p. 347.

still grown at the time of Maximilian's visit. Corn, however, 241
surpassed all the rest in importance. It was a small variety,
five or six feet high, but was not the common, mottled "Squaw
corn" found in the region later. Maximilian enumerates seven
distinct sorts, as follows: — white, yellow, red, spotted, black,
sugar, yellow flint, and red and white striped. The sweet corn 251
was cut in the milk, then dried on the scaffolds in the sun and
kept in the caches. The other corn was not gathered till it was
ripe; it was then shelled and also put in the caches. Corn was 252
eaten as succotash with beans, boiled as hominy, ground up
into coarse flour and made into cakes, and also as a sort of gruel
and in several mixtures with wild fruit.

The beans, as to the cultivation of which there is little information 241
were, nevertheless, of considerable importance. Maximilian[1] 251
gives a number of varieties of these also; there were 252
white, black, red, and speckled beans. These were not gathered
until ripe, and were then spread out on the flooring of the scaffolds
to dry, after which they, too, were stored in the caches.
The beans were used in about the same way as the corn, both
of them being mixed in many dishes. There were five varieties
of squash or pumpkin, yellow, black, striped, long, and thick
skinned. These were usually cut up into thin slices, hung by
cords from the scaffold rafters and dried in the sun. They, too,
were then stored away for future use, to be boiled with beans
and corn or separately, or eaten with some of the wild plums
or choke-cherries.

The sunflowers, Maximilian says, seemed to differ little from
those ordinarily cultivated in civilization. There were three
kinds, red seed, black seed, and a small seeded sort. There
is no account of the method of preparation, but Maximilian
tells us that very good cakes were made from them. The Mandan 249
tobacco, which was used also by the Hidatsa and Arikara, 276
while belonging to the Nicotiana, was a small species. Verendrye
says that the tobacco was put up in rolls, that they cut it
green and used it, stalks and all; he said it was not good. Later
authorities do not agree on its preparation, however, as both
Maximilian and Henry say that it was cut ripe and ground up

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[1] Op. cit., p. 292.

249 276 fine. It was usually smoked mixed with the bark of the so-called red-willow or Cornus. Henry says that the blossoms were used, and were dried on a piece of pottery before the fire. Lewis and Clarke and Gass both mention this tobacco and agree with Verendrye that it was not good to those who were accustomed to European tobacco. The Mandans themselves soon discarded their own variety, raising only a little each year to use in ceremonials.

222 Although hardly coming under agriculture, still as a related matter, it might be well to mention the wild vegetables and fruits which were so much used by the Indians of the region. These were june-berries, choke-cherries, wild plums, the feverole, and especially the pomme blanche or Indian turnip. The latter were something like artichokes, white, ovate, one to three inches long, and about the size of a man's finger. They were collected in large quantities and formed a very common food.

224 Hunting and Fishing: — The Mandans derived a living from agriculture and the hunt in about equal proportions. Their methods of hunting differed little from those of their neighbors. Game was in abundance and many animals besides the buffalo contributed to their sustenance. Among these were antelope, elk, deer, bighorn, and an occasional bear, besides beaver, rabbits, ducks and geese. Other animals were killed for their hides alone, as wolves, foxes, ermine and panther. Eagles and other birds of prey were hunted for their plumes.

Buffalo were hunted all the year round whenever they were in the neighborhood of the village, for the Mandans did not go away on long hunting trips as did most of their neighbors. The buffalo hunt was directed by the Soldier Band. A small detached body of buffalo would be surrounded by the horsemen and then every animal killed in order to prevent the alarming of the whole herd. Any animal which did not contain an arrow by which the slayer could be identified, belonged to whoever found it. The beasts were cut up, and each man's horse was laden down with meat. Certain choice parts were eaten immediately by the hunter, and the heart and tongue could be demanded from anyone of a lower grade than he who asked for them. The childless old men and women usually

met the returning hunters at a short distance from the village, 224
and the hunters dropped portions of the meat for them.

When the Missouri broke up in the spring large numbers of 252
buffalo were drowned and floated down the river. The Mandans usually caught large quantities of these as they floated by, and esteemed them as better than the fresh meat. Henry says that meat was nearly always hung up till partially decayed, after which it was better liked. The intestines of the buffalo were considered a good food and were always eaten. The Mandans made pemmican, as did all of the plains tribes, grinding up the dried meat and packing it in parfleches, after which buffalo fat was poured in.

Probably the antelope were next in importance to the 224
buffalo. These were caught in large bands by means of what were called parks. At the head of a coulée an enclosure of branches was made with a narrow opening from which two fences of branches led away in the shape of a funnel, extending for a mile or often more. The Indians, on horseback, by surrounding a band of antelopes could gradually work them towards this enclosure, through the gate of which they were at last forced to go. The entrance was then guarded and the hunters knocked the animals on the head with the stone war clubs; a hundred or more at a time were often killed in this fashion.

Wolves and foxes were trapped in pitfalls which were dug to a depth of eight or ten feet, covered with branches and baited with pieces of buffalo meat. Beaver and other small fur-bearing animals were caught in traps. Bears were killed only occasionally as the Indians did not like to attack them. Cat-fish and 226
sturgeon, as well as smaller fish and turtles were caught along the river, where unios and snails were also gathered.

The larger birds were caught in a rather peculiar fashion. 223
The hunters usually went to the Bad Lands to hunt them. 171
There a pit was dug in some likely place. Bait of small pieces of meat was scattered about, after which the hunter concealed himself in the pit, dragging over the top a covering of branches with bait upon them. Then he waited patiently, often for a day or more till a bird should alight on the branches; as soon as this happened the bird was grasped and pulled down into

223 the pit where it was dispatched and the hunter waited for an-
171 other. This method was also used by the Hidatsa, and so in
fact nearly all the Mandan hunting methods and customs were duplicated among their neighbors. The only important exception was the Mandan custom of giving a share of the meat to anyone who might come to the home of a successful hunter and ask for it. Henry tells us that the Hidatsa and Amahami did not have this charitable custom.

WAR:— Among most of the Indians, war was the chief occu-
721 pation of the men, and the Mandans in this respect differed
little from the other tribes. They were constantly in danger from their more numerous enemies, the Dakotas, and in addition frequently had disputes with other smaller bands. The Mandans were not a warlike people, and fought only when necessary; but when the time came they were among the bravest and most fearless warriors of the region. Maximilian says that they had been known to send war parties as far as the Rocky Mountains against the Blackfeet and as far east as the Red River against the Ojibwa. Their chief enemies were, however, the Dakota, the Cheyenne, and at times the Arikara. The custom of sending out war parties was not as usual here as among
721 their neighbors, the Hidatsa. The system of rank in the village
554 was to a considerable extent based upon military prowess;
301 the wearing of different insignia which indicated each man's
302 deeds was a common device. Those who had made a coup
wore a wolf's tail at the heel of their moccasin. If a man was the first of a party to touch and kill an enemy, he painted a spiral line about his arm, with another winding in the opposite direction with three cross stripes. For the second enemy he painted his left legging a reddish brown. If he killed an enemy in equal fight before any other enemy was slain, he could put a wolf's tail around each foot. For the third coup two lengthwise stripes with three cross stripes were painted on the arm, this was the most honorable coup and no other distinctive marks were in use, except that another eagle feather might be worn in the hair for each additional coup. If a man made his coup after others were made, the end of the wolf's tail was cut off. Six little wooden sticks worn in the hair showed that a man

had been shot six times; some wore a wooden knife, a sign they 721
had killed an enemy with a knife. Maximilian describes one 554
man, a chief, whose face was painted half yellow and half 301
red, with stripes made by rubbing the color off; his arms had 302
seventeen lines showing the number of his deeds, and on his
breast, in yellow, was a hand showing that he had made
prisoners.

When a youth first wished to lead a war party he at once 701
acquired a medicine. Then he solicited his young men friends 554
by presents and assurances of the efficacy of his medicine and
after feasts and dances he departed with as many followers as 778
he could get. In the large war parties there were four real
leaders and sometimes three others called bad leaders. Each
real leader carried a medicine pipe in a case on his back. To
become a chief it was necessary to begin as a war party leader,
then to kill a man while in a party where the candidate was not
a leader. Again, while following another leader, he must be the
first to discover the enemy and kill one of them, and lastly he
must have owned at some time a white buffalo hide. Each 726
warrior carried about his neck the whistle of his band, and at
the moment of falling upon the enemy these were blown and
the war-cry was sounded.

The Mandans seldom took male prisoners but even when 727
taken they were never tortured. As soon as a prisoner had
entered the village and eaten corn he was considered as one of
the nation; the women, however, could go out and meet the
returning party and kill the prisoners then. Scalps were dried
and used in decoration. When a successful war party
returned they were met by the women and children who entered
the village with them dancing the scalp dance. The warriors
painted the face, and often the whole body, black, and the
scalp dance was danced in the medicine lodge four nights,
then later in the middle of the village. If no Mandan was
killed in the campaign, the dance was kept up for six
months.

In all these war customs we find nothing more than the [171]
general plains ideas such as were found in all the Sioux tribes
and among most of their neighbors.

164 **Disease and the Cure of Disease**:—The Mandans were as a rule a very healthy people and their catalogue of diseases was small, being mostly those which of necessity accompany a life of considerable hardship. Catarrhal troubles, snow blindness, rheumatism and hemoptisis were most common. They had no fevers and no consumption; venereal diseases were found, but the Mandans always claimed that these were got from the Crows. Their other troubles were wounds, snake bites and freezing. Maximilian said that he also found cases of the gout among them.

757 Colds and catarrhal troubles and rheumatism were treated in the vapor bath which is found in one form or another among most Indian tribes. The patient was steamed well and then immediately plunged into icy water or snow, from there he went into the house where he was kept wrapped up for some time. The snow blindness was treated by gentle sweating. Cataracts and inflammation of the eyes resulted from snow blindness at times, and the inflammation was treated by rubbing with some herb which had a rough surface. With this the eyeball was rubbed till blood flowed. Bleeding was practiced, and rattle-snake rattles were considered to be a remedy for almost anything. The rattles were powdered fine, mixed with water or saliva and either swallowed or rubbed on the parts affected. The Mandans used no emetics but had a number of vegetable purgatives. Lewis and Clarke described a root which was chewed and placed on a snake bite, they called it Sackacomah but it has not been identified botanically. Freezing was treated by rubbing with snow. Horses were sometimes given a piece of wasp's nest as a diuretic.

752 Wounds healed with remarkable rapidity and had very little care. Severe cuts were rubbed with fat and sometimes bound up. A number of cases were known where persons who had been scalped recovered. In arrow wounds the point was always forced entirely through the flesh if possible because it came out more easily so.

524 **Games**:— The Mandans had games for men, women and children, and in most of these betting was an important part of the sport. Probably the best known of these games was

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Skohpe, Tchung-kee or Billiards as some have called it. Henry[1] gives a good account of the method of play: 524

"Two persons are each provided with a stick six feet long on which are cut a certain number of notches an inch long; in the intervals of which are fixed the same number of small bunches of feathers of diverse colors, with three pieces of wood sixteen inches square one near each end and one in the middle; these are perforated in the center and through them is passed the rod .... Each notch has a particular mark..... The ground is a smooth level place forty paces long by five broad. The players stand side by side and start from one end .... and trot .... half way through, when one of them throws a ball .... and both players push their rods forward to overtake, and keep pace with the ball. They then examine the bunch at which the ball stops."

Catlin[2] also describes it, saying that Tchung-kee was played on a smooth clay pavement. Two champions chose sides. One rolled a stone ring, the other slid a stick alongside, this stick had leather projections on which the ring should catch. The points were game, one, two, and four, depending on which projection the ring caught upon. The last winner always rolled the ring. If either failed he forfeited the amount of the number nearest to which his stick stopped and lost his throw, another taking his place.

There seems to have been two forms of the game. The Hidatsa and Arikara played it, the latter considering it to some extent as a religious ceremony. Maximilian[3] tells us that the Pawnees also played it, but differently. Similar games were found throughout the southeast. 524 171

In addition tc Skohpe the men had horse races, foot races, and, according to Maximilian, sham battles. Catlin speaks of the games of moccasin and platter. Verendrye says the men played a game of ball on the ramparts, but this was probably Skohpe. The horse race was run in a circle about the village. Maximilian tells us that as many as twenty men ran in the foot races, and the races are mentioned by other writers. The men raced usually over a course about seven miles long. They had 526

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[1] Op. cit., vol. I, p. [illegible]. [2] Op. cit., vol. I, p. 132. [3] Op. cit., p. 417.

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526 regular archery contests in which each competitor paid an entrance fee; the object was to see which man could get the most arrows into the air at once.[1]

The women played a game with a large leather ball, ornamented and well made, which they caused to fall alternately on the foot and knee by bouncing. There was also a children's game, called Assé, played with the tip of an antler to the base of which two feathers were attached. The children also played a game with a hoop covered with a number of leather bands, and about a foot in diameter. This hoop was rolled along and they hit it and knocked it down by throwing a pointed stick; the one that struck nearest the center won. In the spring after the break-up, the children used to run along the bank and throw this ring into the water.[2] Catlin also gives an account of sham battles under the leadership of older men in which the boys engaged.

533 MISCELLANEOUS:—As to the other features of their culture perhaps a few words from Maximilian[3] will give some idea. He says:—"Many of them take a real pleasure in music and painting and are very skillful in both. . . . Their musical instruments are simple. The songs consist of cries uttered from time to time, and broken by louder bursts of joy. These are accompanied by heavy drum blows and the sound of rattles. . . . They 521 discussed with pleasure subjects of the highest order, the universe and its cause together with kindred topics, saying that their own explanation was far from satisfactory. . . . They are 537 very fine orators, and use very impressive figurative language. They like to talk. . . . By nature they are proud and full of ambition. . . . They often are highly sensitive, and some have 156 been known to die of love or from wounded personal pride due to an insult to their honor."

538 Maximilian also says that they were good story tellers and took great pleasure in relating their myths and legends. They had a sort of literature in the shape of rituals for their elaborate dances, and these were handed down through the medicine men. 805 They paid considerable attention to the stars in their ceremonies but were not students of the heavens, and their calendar was a

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[1] Op. cit., vol. I, p. 141.
[2] Maximilian: p. 417.
[3] Ibid., pp. 404 et seq.

purely lunar one. Some record was kept of the years, a certain symbol of some distinctive event standing for each year on the record robe, the same system used by the Dakotas. The year was divided as follows: 865 [211]

January	Moon	of	seven cold days.
February	"	"	the rut of wolves.
March	"	"	sore eyes.
April	"	"	game; or of the river break-up.
May	"	"	sowing; or of flowers.
June	"	"	ripe june-berries.
July	"	"	ripe choke-cherries.
August	"	"	ripe wild plums.
September	"	"	ripe corn.
October	"	"	the fall of leaves.
November	"	"	the freezing rivers.
December	"	"	the little cold.

The Mandans were a very liberal and hospitable people, more 574
so than any of their neighbors according to Henry. Food was 554
practically common property in the village. No man could
become a chief without much giving of presents, and giving was 431
considered a great honor, the gifts which a man had made being painted on his robe along with his deeds in war. If one expressed a desire for anything it was immediately given to him but a present of equal value was expected in return. In con- 437
nection with this might be mentioned the custom of taking back a sale; by a return of the purchase price a man might regain anything which he had sold, whenever he wished to.

The hospitality of the Mandans is mentioned by every visitor. 574
Verendrye speaks particularly of his kind reception and says, "Their custom being to feed liberally all who came among them, selling only what was to be taken away."[1] Even their worst enemy when once in their village had nothing to fear and was treated with all kindness. Henry remarked that the Mandans were thieves but never touched any property of a stranger who was a guest in a lodge. They were bound to protect any stranger, even an enemy who might seek refuge in the village.

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[1] Op. cit., p. 15.

648 Among a number of other customs, was treaty making with
other tribes. This was well described by Henry who accompanied
the Mandans and Hidatsa when they went to make a
treaty with the Cheyennes. Most of the people went on
these treaty visits; the band marched in a procession of fixed
order and a number of ceremonial objects were carried exposed
throughout the march. The party was met with great ceremony
by the new allies and its members were taken into their
[597] houses. Several days of ceremonial feasting occurred and
finally the head chief of each party adopted a son from the other
[439] tribe. After this there was more feasting and several days of
trade between the two bands, when both returned home.

597 The adoption of sons occurred also among the different
families. Maximilian describes the adoption of a "medicine
son" to whom a sacred pipe was given. The man chose his
adopted son through a dream. The new pipe was consecrated
and gifts were showered upon the son's family by the adopted
father and his relatives. A dance and feast was then held.
This custom was prevalent over all the Missouri region.

838 There were a number of men who dressed and acted like
women and were treated in every way as such. These men
claimed to follow this life by an order from the spirits given
to them in a dream.

567 Catlin says that the Mandans did not have slaves and there
is no mention of them elsewhere. The Arikara, however, had
a regular slavery system, and the Crows made slaves and sold
201 them on the Missouri. The Mandans were very good at the
sign language so Maximilian tells us. They were expert swim-
481 mers, and collected their whole supply of wood by swimming
313 out and towing in the drift wood at the time of the spring breakups.

511 In point of general culture the Mandans were superior
to any of their immediate neighbors, surpassing even the other
sedentary people, the Hidatsa and Arikara. Catlin says that
they had advanced far in the arts of manufacture and had
more comforts and luxuries than other tribes. When Verendrye
saw them he, too, was struck by their superior skill. He said
that the Mandans dressed leather and worked in feathers better

than any other nation; also that they sold grain, tobacco, peltry, 571
and painted plumes to the Assiniboine for arms, kettles, and
other things of European manufacture. As is seen from this 177
account of Verendrye, European culture touched them very
early by means of trade with nations farther east, and they
were quick to take up the better articles so acquired. For
this reason it is difficult to get any description of the use of
earlier crude bone and stone implements, most of which had
almost gone out of use when Lewis and Clarke visited the
villages.

Social Organization: — As regards the social organization, 621
the Mandans were divided into two sorts of bands. By the
first method, like the Pawnee, they were known according
to the old village from which they had originally come.
Maximilian names at one time eight villages in describing the
old habitations; in another place he says they had thirteen
and gives the names for six more, this gives fourteen distinct
village names. He says that the people were known by the [614]
names of the villages whence they originally came, and Morgan
mentions eight of the names given, as the gens names. This is
the only trace of a gens organization found. The second method 561
of grouping into bands followed the lines of the general plains
division according to age. The First Chief who led them from
underground was the originator of these divisions. This chief
gave to each band its own songs and whistles and directions as
to conducting its dances. Each of these bands was distinguished by a number of songs, by a certain sort of war whistle,
by its head-dress and a number of other details of attire and
ceremony. For the men there were six recognized bands. As
men grew older they went from one band to the next. Each
band or society had a limited membership, and a place in the
band above was only obtained by purchase from a member
who was ready to resign his place, and try to purchase a place
in a band still higher up. New members must be received by
all the old members of the band or the sale could not be made.
Each society had a chief who was in charge of all important
affairs. After a sale the new member gave a feast to the whole
band, and following this the purchase property was returned to

561 the buyers. The first band was that of "The Dogs Whose Names Are Not Known." To this band boys from ten to fifteen years of age could belong. Maximilian was told that at first older men might belong to this band but that this was afterwards changed. Admission to this society and the learning of the dance was bought from a member by the boy's father. Maximilian says that the dances of all the bands were about the same, the differences being in the songs. Each band had a particular drum and rattle.

The second band was the "Band of the Crows" composed of men from twenty to twenty-six years of age.[1] There was usually an interval between the first and the second band when the man belonged to no group. Crow plumes were the distinguishing feature of this division.

561 625 623 [778] [171] The third society was the "Soldier Band" and was composed of the most distinguished warriors of the tribe. The members of this band could never retreat before an enemy. Another feature was its possession of two sacred pipes. All members of the higher bands belonged at the same time to this one. This group had charge of policing and regulating the village, a well-known feature of the Soldier Band among the Sioux and other plains tribes. They formed a committee which regulated all the important affairs of the nation, fixed the time for hunts and applied all the laws.[2]

561 The fourth division was the "Dog Band." Three members from this wore a red cloth down the back such as all the first band wore. These three were known as the Dogs, and anyone could throw a piece of meat on the floor or in the fire, saying "There, Dog, eat," and any of these three must obey.

[534] The fifth band was that of the "Buffalos" or "Wolves." These in dancing wore the skin of a buffalo head with the horns. The two bravest, chosen by all, who never under any conditions could flee from an enemy, wore the whole head and horns and looked through artificial eyes. This was the only band which had a wooden drum. In this society there was also one woman who offered the two head dancers a basin of water as they danced.

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[1] Op. cit., p. 409.

[2] Ibid., p. 411.

831 among the Arikara and Hidatsa. The men boasted their love
171 exploits, and carried often about the village small bundles of
sticks each representing a conquest, or one large stick with
stripes indicating the number; this was also a Hidatsa custom.

585 When a man wished to marry, after obtaining the girl's and
the father's consent, he led horses to the door of the father's
house and tied them there. Then the father took the same number
of his own horses and tied them to the young man's door.
After this the girl cooked corn each day and carried it to the
young man's house for a certain number of days. Then the
young man went to the father's house and claimed his wife.
The young people either built a new home or lived with one of
their parents, in which case the father remained master of the
587 house. On marrying an eldest sister, a man acquired the right
of marriage over all the other sisters. Catlin tells us that the
girls usually married at from twelve to fourteen years of age.

858 Children were never disciplined and were always humored
by their parents who seemed to be very fond of them. The
601 father's brother and sister were called father and mother. The
606 mother's sister was called mother and her brother uncle.
551 Cousins called each other brother and sister. The mother-in-law
was not permitted to address her son-in-law till he had
come back with the scalp and gun of an enemy. Someone was
usually paid to give the child his name, which was chosen by
the parent.

RELIGION:—The religious ideas of the Mandans resemble in
776 a number of respects both those of the Sioux and the Arikara.
While there are a number of deities, there was one among them
to whom special veneration was paid. This one, the creator
of the earth and everything in it, and of men, was called the
Lord of Life.[1] Next after him came the First Man to whom
the Lord of Life gave great power and who acted as a sort of
mediator for men. Catlin says he was the only person saved
from the great deluge, and he played an important part in the
Okeepa. He was worshipped and sacrifices were made to him.
Next was an evil spirit who, though powerful, ranks far below
the First Man. Fourth on the list was Rokanka–Tauihanka

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[1] Maximilian: p. 419.

who lives on the planet Venus and protects men. Fifth was one called the Lying Prairie Wolf, a sort of wandering Jew and evil spirit, but without power. Lastly was Ochkih-Hedde; he came once to the village and taught them many things, then disappeared. When anyone saw him in a dream it was a sign of death. Sacrifices were offered to him and images of him were exposed in the village. 776

The sun was worshipped as the place where the Lord of Life lived. 776 In the moon lived the Old Woman Who Never Dies, 772 who had a white line around her head. She corresponded to the Corn Mother of the Arikara and was supposed to be very powerful. Many sacrifices were offered to her. She had six children, three sons and three daughters. The first son was day (the first of creation), the second was the sun, the third was night. The eldest daughter was the morning star (the woman who carries a bunch of feathers), the second was the striped pumpkin (a star revolving about the polar star), the third was the evening star. Besides these there was a group of supernatural beings of less prominence, among whom were the first chief, certain animal people, the thunder-bird and similar beings.

They seemed to have two distinct theories as to the hereafter, 775 according to Maximilian part of the people adhered to each view. Both beliefs agreed that each man had four souls, one black, one brown, one clear, and the other not described. The first sect believed that the clear soul returned to the Lord of Life; another one went to the villages to the south which are often visited by the gods, and one of the souls of the brave and great men went to the villages of the gods. There was a separate village for the wicked. Life in all these villages was a continuance of that on earth, they had food, women, went hunting and on war parties, and had an abundance of everything. To this might be added Catlin's story,[1] somewhat less credible, that they believed in a warm heaven and a cold hell; that all went to hell for a while where the Good Spirit punished them, after which they went to heaven where they were again tempted by the Evil Spirit. The other sect described by Maximilian believed that after death they went to live in the sun or stars.[2]

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[1] Op. cit., vol. 2, p. 157.

[2] Op. cit., p. 480.

775 In this description of an after life, there was a marked mixture of ideas. The idea of multiple souls is Siouan, the rest is more or less common over most of the region.

As usual in the plains area every natural phenomenon and
776 unaccountable event was mystery or medicine, and the medicine
821 idea played the usual important part in all their religious customs. Thunder was ascribed to the familiar thunder-bird, the glitter of whose eyes dug a path through the clouds for the rain and caused the lightning.[1] Solitary claps of thunder were ascribed to a huge turtle which lived in the clouds. The rainbow was said to be a spirit which accompanies the sun and which shows itself when the sun retires for the night. The aurora borealis was said to be the fire kindled at an assembly of the great medicine men and warriors of the northern nations, over which they cooked their dead enemies in huge pots.[2] They had several beliefs about the stars—that of the Sioux, that each star is a man, and when a child is born the star comes down and when he dies it returns; also that a multitude of supernatural beings existed in the stars to which sacrifices and prayers
[787] were offered. Dreams were of very great importance and governed nearly all their acts.

789 There were many small personal superstitions or mysteries. One man told Maximilian that he could turn a snowball into a
843 white stone, another claimed that his nose always bled if he picked up his pipe by the bowl. There were many signs of good and bad luck. A pregnant woman was considered to bring luck at the game of Skohpe. The medicine men told them that if a clay image of an enemy were made with a needle or quill in it for a heart, and were placed at the foot of some medicine structure, that enemy would die. A pregnant woman brings bad luck to her husband in hunting. Many of the Mandans believed that they had some animal, as a buffalo, turtle or frog in them; the women had a dance when they thought an ear of corn was in them, which the dance caused to come out.[3] There were a number of other superstitions of this sort, mostly common to all the plains tribes. One more notable might be mentioned, how-
372 ever, that of building the fire with two sticks crossed in the center,

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[1] Ibid., p. 422.

[2] Ibid., p. 423.

[3] Ibid., p. 463.

which were pushed in as they burnt. This was done because the 372
First Man told them they must never have a big fire after the
day's cooking was done and showed them how it should be [773]
built. It recalls the sacred fire of the Muskogi and other tribes of the lower Mississippi. They declared that many of the every day customs were taught them thus and consequently they always did them a certain way,—thus Ochkih-Hedde taught them to tattoo themselves, and their first chief taught them to kill buffalo and to make shields.

The Mandans practiced penances and sacrifices, especially 782
self-torture which they carried to great extremes. Their medi- 304
cine or personal guardian spirit was acquired by three or four
days fasting and self injury, after which the medicine, often an 776
animal, appeared to the candidate in a dream. This ceremony 785
was also taught to them by Ochkih-Hedde. No expedition or enterprise was undertaken without a liberal sacrifice to some supernatural being, either by offering valuable goods or by physical self-torture. Finger joints were frequently cut off as an offering to the gods and fasting was common as a propitiation. Often a day or more would be spent near one of the medi-
cine scaffolds in groaning, praying and weeping. Lewis and [765]
Clarke relate that finger joints were also cut off as a sign of mourning, which Maximilian denies, and Catlin tells how such a sacrifice was a part of the catalogue of tortures in the great
Okeepa dance. The custom of consecrating personal property 782
is found here as among the neighboring tribes. A man could 574
make his gun, his horse, his pipe and other similar articles medicine by going through certain ceremonies, most important of which was the giving of a feast. The feast[1] was announced by a public crier, a certain number of guests were invited, the invitations being originally little rods and later playing cards. The drum and rattle made the round of the company. Then the article was consecrated; if a gun, it was rubbed with meal several times, with soup, and lastly with fat, after which the feast took place.

There were many shrines and sacred articles among the Man- 778
dans, but judging from the accounts, the sacred bundles or

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[1] Maximilian: p. 463.

778 medicine bags as Maximilian calls them, seem to have been much less important than among the Arikara. Nevertheless these bundles were by no means absent. Maximilian relates that each man had his own medicine bag, the contents of which no one else might see. In addition to this there was a large medicine bag in the medicine lodge within which, Maximilian tells us, were preserved three sacred skulls, those of the chief who had led them out from underground, of his sister, and of his brother — also this chief's rattle. In the medicine lodge were also the sacred rattle and the four drums of hide, filled with water, which were made to resemble turtles and which they claimed, according to Catlin, they had always had. They had a sacred pipe or calumet also, which Maximilian was not allowed to see, the price of looking at it alone being placed at one hundred dollars. He says[1] that it was very hard for the Mandans to get these sacred pipes and much more trouble to consecrate them. Certain things must be hung upon them and among these was the skull of an animal which at that time was not found in the vicinity, and for which an enormous price had to be given. There were many other pipes called medicine pipes belonging to private owners, these however were merely ordinary pipes which had been consecrated by the ceremony already described. 778 825 Each Mandan regarded his own medicine as a sacred animal, and in addition there were several animals which were regarded as sacred throughout the whole tribe. Owls and screech owls were kept in the lodges to predict the future. The war-eagle was considered as having great medicine power and they kept all sorts of birds of prey alive in the huts for their plumes. Geese were considered to be very sacred also, first because in one of their tales the Lord of Life turned into a goose and flew away with a flock of them, and also as they are the messengers of the Old Woman Who Never Dies or the Corn Mother. Of greatest importance among these sacred animals, however, was the white buffalo, whose hide was the 778 [439] most valuable article that a Mandan could possess. The hides were bought mostly from other nations, they were tanned with horns and hoofs on, and were not valuable unless of heifers

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[1] Op. cit., p. 439.

under two years old. These hides were worth ten to fifteen 778
horses or sixty ordinary robes. No man could be of great importance 554
in the tribe unless he had at one time owned one
of them. Immediately on its acquisition the hide was hung
up on a pole before the owner's lodge and consecrated to the 778
Lord of Life, the sun, or the First Man. The ceremony of consecration 782
was rather elaborate and was conducted by the shaman.
A great mass of valuables, the collection of three or
four years, was also offered or given away at the same time.
The robe was either left suspended until it rotted away, or was
taken down and cut into strips, one of which was worn by each
member of the owner's family.

The Mandans seem to have had something in the nature of 778
shrines and sacred images both natural and artificial. First
among the artificial ones might be mentioned the Ark or Big Canoe which has already been described. This formed the central figure for most of the Mandan ceremonial dances. There was also the image of Ochkih-Hedde which hung before the medicine lodge; and there were similar images hanging before nearly every one of the other lodges, these were made of skin, branches and earth[1] and were intended to represent the Lord of Life and the First Man. Other shrine-like structures were built on the prairie. One of these is described by Maximilian.[2] " . . . Four poles are placed in a square, the two front ones garnished at the base with a pile of earth and sod. Between them are four buffalo skulls in a row, between the two back poles are twenty-six human skulls painted partly with red stripes, behind the whole are two knives fixed in the ground. The poles are surmounted by bundles of branches; on these again is a crest of pieces of sharp wood, the ends painted red. . . . Sometimes on two of the poles are tied stuffed figures to represent the sun and moon, or the Lord of Life and the Old Woman Who Never Dies. Wild absinthe (wormwood) is attached by handfuls to the poles." These are probably the same things which Catlin mentions in connection with the burial customs.

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Chief among the natural shrines was the medicine rock of 787

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[1] Maximilian: p. 444.

[2] Ibid., p. 460.

778 781 which Lewis and Clarke, Henry, Catlin, and Maximilian all give accounts. The Mandans told Lewis and Clarke that this rock, which was at three days march to the southwest, informed them of every thing to happen during the year and that they visited it every spring and sometimes in the summers.[1] The description which Maximilian gives of this rock seems worth repetition: "It is situated at two or three days from the village on the edge of the Cannonball River from which it is about one hundred paces. They say it is on the summit of a rather high hill, the top of which is level. It is marked by the footprints of men and other animals, dogs and travois. It is a sort of oracle. They offer it all sorts of valuable articles — knives, pipes, cloth. . . . When going to war they pass near and consult the stone. They approach it, weep, groan, smoke, and retire to a distance where they pass the night. Next day they take down on parchment what the stone shows. This painted parchment is carried to the village where the old men interpret it. Undoubtedly new figures are seen on the stone from time to time. Not far from this place was the ark where part of the nation was saved." The Minnetarees also had one of these medicine stones which was consulted in practically the same way. 778 782 One more of their natural sacred objects deserves mention; this was a lake some distance from their villages where a great serpent, formerly a Mandan warrior, was said to reside. This serpent was a good genius and offerings of all sorts were thrown into the lake to procure his aid.

791 The shaman although mentioned occasionally is not described, nor are his powers well defined by any of the authorities. Maximilian remarked that there were shamans who gathered herbs and pretended to cure diseases and others who did tricks and conducted preparations for the ceremonies.

773 539 MYTHOLOGY:—Practically all material on Mandan mythology comes from Maximilian who wrote down a large number of stories directly as they were told to him by a Mandan chief, Dipeuch. Catlin and Lewis and Clarke reinforce these with a few details. It is found by analysis of the myths given by Maximilian that two distinct, parallel, mythological stories of

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[1] Lewis and Clarke: Feb. 21, 1805.

the origin of the people existed, both were told by the same 773
man, each of these accounts being made up of a number of
separate myths. Perhaps a short synopsis of these two cycles 539
will best show the condition of the mythology and the relationship with that of other nations. According to one of these, the Lord of Life created the First Man, who in turn created the earth. It was made of mud brought up from the bottom of the sea by a duck. The First Man walked about on it, meeting some animals and then finally the Lord of Life; a dispute arose between the two as to which should be called father, and they sat down, agreeing that the first one to rise should be the son. Many years they sat and when the Lord of Life was only a pile of whitened bones, the First Man arose. At once the Lord of Life jumped up and was acknowledged as father. The two of them went about together, the Lord of Life said the earth must be remade and called the buffalo, who was commanded to fetch grass and wood. Then the two gods each took half the land to shape—they were at the mouth of the Heart River and the Lord of Life took the south side of the Missouri, the First Man took the north. The Lord of Life made hills and coulées, but First Man made his section flat and wooded so people could not live there. Then each made himself a wooden pipe, the Lord of Life making his of ash wood inlaid with stone, the First Man making his of soft wood. They placed the two together and the Lord of Life said, "This will be the center, the heart of the world." They walked along and met a buffalo from whom they got tobacco. Then they made men, but limited their life to one hundred years lest the world be over-populated, and these men were taught by the Lord of Life to use buffalo. After this the Lord of Life and the First Man killed all the old wolves and taught the young ones not to eat men, the skins of the old ones floating down the river, turned into white men. A little later the First Man saw a girl ineffectually attempting to bring ashore a dead buffalo cow, he supernaturally guided it to her and she ate some of the flesh and in consequence became pregnant. A boy was born to her who became the first chief. This chief made a canoe which understood him when he spoke to it. In it he sent some men down to a white nation

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to get shells and beads. The men were killed, so finally he went himself and came back safely. Then the First Man went down with another party and all were killed but he. He saved himself by strategy. The white men became angry because they could not kill him and they made the waters rise so that the whole earth was submerged. Related to this is a statement by a Mandan to Catlin that the earth was a huge turtle, the white men stuck a knife through its shell and it sank so the water flooded its back. The First Man made them build a tower on a height on the lower bank of the Heart River and the whole nation was saved there. Soon after the flood, the First Man went away to the west and said he would come back when they needed him. One day they wanted him and could not discover how to reach him, till at last a man said that thought would do it. He sat down and thought and cried, "I think, I have thought, I return," and rose bathed in sweat, and the First Man came, and helped them. Just after this the Lord of Life turned into a goose and being hurt fell into a Mandan village where he escaped plucking by cursing the women. Thence he flew to the Hidatsa village, where he clawed and beat a woman who said she would have no one but the Lord of Life for her husband. The next day, however, he returned to the sun and caused her to ascend to him by means of a rope which he let down, the story continuing the Siouan myth of the boy and the mother coming down a sinew cord to the earth again.

The second cycle of stories does not begin with a creation myth, but merely with a brief account of the earliest existence. The Mandans said that there were four stories under the earth and four stories above; before the flood they lived in a village under the earth near a lake, and a grape-vine grew down through, letting the light into the underworld. They wanted to come up and sent the mouse, badger, a strange, mythical animal and a deer to dig out a hole. Then they climbed out by the grapevine till half were on earth and a very corpulent woman broke the vine. A flood came when they were first coming out and the first tribe (Tattooed Faces) perished almost wholly. All this happened near a lake to the east. If they are good the Mandans go back to this old village under ground when they die.

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They now found themselves on the surface of the earth. The people were led by a chief and they kept walking till they reached the Missouri at the mouth of the White River. They ascended it to the Moreau, here they found enemies in the Cheyenne, and they went to war and killed and scalped for the first time. The great chief who led them out of the earth together with his sister and brother taught them to make shields, and then he divided them into bands and led them against the Cheyenne. After a long struggle he performed a miracle by which the enemy were nearly all slain. Then the Mandans moved up to the Heart River. Here one day, four Hidatsa came to them for a time and on leaving promised to return in four days. Four years later they returned with a numerous band. The Hidatsa crossed the river and built villages, and the Mandans taught them to raise corn. Then after a few years they moved up to the Knife River where they settled. This was during the period at which the Mandans lived in a village on the Heart River.

Besides these two myth cycles there are also a number of tales as yet unconnected with either group. First among these should be considered the tales about the Old Woman Who Never Dies. The Old Woman Who Never Dies owns a very large plantation in the south where her two deer and many blackbirds guard her crops, and the mouse and mole help work the soil. The water birds she sends north as her representatives in the spring, and at the same time goes north to visit the Old Man Who Never Dies, but she stays with him only a short time. She is the goddess of corn, and the ceremonies in her honor are to bring good crops. Formerly she lived on the Little Missouri where the Indians visited her. She gave the Hidatsa once a little corn in a dish and it fed twelve men. Finally she went south to live.

The story of the great serpent forms an important tale for comparative purposes. The great serpent was supposed to have been one of two Mandan braves who crawled through a hole in the bluff and came out in a land of giants. On returning, the two killed a monstrous snake of which one of them ate. He himself soon turned into a great snake and became a sort of minor deity for the people.

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As has been said there are in the Mandan myths two distinct cycles of tales; there seems to be two sources for the detached stories as well. The first cycle seems to be along the lines of the Siouan and Algonquin stories. The creation myth is much like that of the Chippewa: the naming of the animals, the story of the Sun Boy, and the tale of reaching the First Man by thought, seem to be Siouan in their origin for we find them most important in that stock. The creation myth exists likewise among the Crows, and it is told by the Arikara,—the latter, however, have a more popular creation tale. The Mandan myth is not found among the Skidi Pawnee. The story of the making of the Heart River region is naturally found among the Arikara as are some tales about Lucky Man and the Wolf who seem to correspond to the Lord of Life and the First Man, but none of these characters are found among the Skidi tales where Tirawa, the Creator, has no companion in his work. The tale of the struggle between the Lord of Life and the First Man as to which should be father is distinguishable in the Arikara, but not in the Skidi. The tale of the Sun Boy is, however, found in the Pawnee, but is known also in practically every plains tribe. The story of the child born to the girl from eating cow fat, is in the Crow but not in the Arikara or Skidi. In general so far as comparable material is at hand these tales do not appear to be of Caddo origin, and are in most cases connected with the tales of some other Siouan tribe.

As to the other cycle of tales there is little in the Siouan stories with which it may be compared. The story of an underground origin is developed characteristically in the southwest,—it appears in numerous forms among the Arikara and with even more detail among the Skidi. The first chief in the Mandan migration, the man who led them from underground, is very closely allied with the Corn Mother leader of the Arikara, and the preservation of his skull in a sacred bundle is again suggestive of the southern plains.

The Corn Mother tale seems most clearly related to Caddoan. The tale of the Great Serpent as well as that of the Sun Boy is spread over the whole plains region,—the Crow, the Arikara, the Pawnee, and the Dakota all possess more or less close versions of this story. None of the Caddoan Poor Boy stories have been found in the Mandan, but this may be due to the limited extent of Maximilian's collection. It can only be said that the Mandan myths so far as known seem to be about an equal mixture of north and south plains types. 773 171

CEREMONIALS: — The Mandan dance system seems to have been rather complicated, and in it are found again the two conflicting influences. In one case the origin of the dances is said to have been due to Ochkih-Hedde, the evil spirit. Again the First Chief who led them out of the ground is said to have arranged all their dances, and the Okeepa, according to Catlin, was instituted by the First Man. There were two sorts of dances; first those in which it appears that anyone could take part, and secondly those belonging to the different societies previously referred to.[a] Of the first kind there were four principal ones, and of these the Buffalo dance and the Scalp dance, although not the most important, were most frequently danced and were practically identical with the same dances of other plains tribes; the Scalp dance was performed by those related to persons with newly acquired coups. The Buffalo dances were of two types. One was for the purpose of getting the good will of influential men and is described by Henry and Catlin. This dance had several obscene features. The other Buffalo dance was danced by the men in relays wearing a buffalo head and its purpose was to bring the buffalo in time of need. 535 796

The other two dances deserve more particular mention. Catlin says of all these dances,[1] "Every dance has its peculiar step and song." The songs were understood only by the medicine men and required much application and study. Candidates paid to learn them. This applies particularly to the Okeepa which is the best-known dance of the Mandans. No description is necessary as Catlin has given two very full ones and Maximilian has also given a good account of it. The Okeepa was performed once a year as a rule and nearly every inhabitant of the village had some part to play in it. It lasted four days, and in all the dances, dance groups and ceremonial

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[1] Op. cit., vol. 1, p. 126.

[a] [Cf pp. 129-561, cat. 116 — Analyst]

535 796 objects, they kept a careful observance of the number four and its multiples. The Okeepa appears to have been quite different from the usual sun-dance ceremonies, although the sun-dance observance formed a part of it. Catlin says that no other nation had such a dance, although many had features of it in 535 796 171 their own dances. In some respects it seems to show a rather remarkable similarity to some of the dances of the Pueblo region and very possibly some of these features were transmitted from there through the southern plains tribes. The resemblance is in small details such as the decorating of the ark with willow branches which is much like the preparation of the kisi. Communication with old villages underground was supposed to be established by pounding on the ark, as it was among the southwestern dancers by stepping on the sipapu. From the description of the sacred object in the center of the Mandan altar, it seems to have been something like the Pueblo squash blossoms. Lastly the story of the visit of the First Man to the whites and his institution of the Okeepa, after having escaped them, is much like the origin story of the Pueblo Snake and Antelope Dance. The most peculiar feature of the ceremony was the connection which it had with the flood myth; the ark was supposed to be a copy of the tower in which the Mandans were saved from the flood. It formed the center in all the different parts of the ceremony. The Okeepa had features which have been ascribed by Maximilian to the influence of early missionaries.

535 796 241 The second of these dances was the Corn Dance and this was doubtless of Caddo origin. This dance was danced to the Old Woman Who Never Dies by the old women of the village for whom a number of old men furnished the music. Each old woman carried an ear of corn on the end of a stick and the ceremony was intended to consecrate this corn. After the consecration the corn was distributed, a few grains to each family, by whom it was mixed with the seed corn for spring planting. The ceremony took place when the representatives of The Old Woman Who Never Dies — the water birds — returned north, and a quantity of dried meat was hung up on the scaffolds as a sacrifice. After the dance this dried meat

became the property of the dancers. Another corn dance was 535 held in the fall, but Maximilian tells us that the purpose of 796 this one was to bring the buffalo. In this dance each woman 241 carried a whole stalk of corn—the corn was called by the name of the water bird which represented it, and a prayer was made to the Old Woman Who Never Dies through these birds. The birds going south were supposed to carry these prayers to their mistress, and in this dance each old woman made a sacrifice of some valuable article. The elements of the corn dance agree [171] in most particulars with those of the Pawnee and southern plains tribes.

Burial:—In their burial customs the Mandans show close 764 analogy with the Sioux. Their cemeteries were usually only two hundred to three hundred paces from the palisade and consisted of a number of scaffolds on which the dead were placed. These scaffolds were made on four posts about twelve feet high, the length of the rectangle being about six feet. Across the posts willow rods, just strong enough to support the body, were placed.[1] When a person died he was left in the village but a very short time; the face was painted red, the body was oiled, dressed in the finest clothes and wrapped in a green buffalo skin or at a later period in a piece of cloth. The whole was then tightly wrapped with thongs of rawhide from head to foot. Then other robes were soaked in water and tightly wrapped and tied around the body. After this the corpse was immediately carried out and placed on the scaffold together with a bow and quiver, shield, pipe and tobacco, knife, flint and steel and provisions for several days. In case of a child, it was wrapped up in a small bundle which was tied to the scaffold by a cloth or hide. Catlin says the bodies were placed with their feet to the rising sun. Maximilian says the face was turned to the east.[2] Lewis and Clarke[3] give an account of a different sort of burial which must have been of rare occurrence for we find no mention of anything of the sort elsewhere. It is as follows: "An old man . . . . . one hundred and twenty winters old, he requested his grand Children to Dress him after Death, & Set him on a Stone on a hill, with his

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[1] Catlin; vol. I, p. 89.

[2] Op. cit., p. 479.

[3] Feb. 20, 1805.

764 face towards his old Village Down the river, that he might go Streight to his brother at their old village under ground." When a warrior was killed in battle he was never buried. If the body could not be carried back to the village, it was left as it lay.[1] In such a case the family would roll up a buffalo skin and carry it out, placing it on the scaffold where it was treated just as if it held the body of the dead man.

Catlin says that when the rods supporting the body broke and the body fell, the family interred all of the bones except the skull. Such skulls were placed eight or nine feet apart, in circles; one hundred or more in a circle; in the center of each circle was a small mound about three feet high. On this mound were two buffalo skulls, a male and a female, and in the center was a medicine pole twenty feet high supporting many medicine articles. Each skull was on a bunch of wild sage.

764 304 The Mandan period of mourning was one year, during which they dressed poorly and kept the hair cut short. Immediately upon the death, the relatives cut their hair, rubbed their bodies with white and gray clay, and gashed their arms and legs with a knife or a stone so that they were covered with blood. In the first few days groans and weeping were continuous. According to Maximilian there was a very solemn ceremony concluding the burial, which he called covering the body. This act might be done either by a relative or an outsider. The person who intended to cover the body came with one or two cloth coverings, red, blue, white or green. He mounted the scaffold as soon as the body was placed upon it and covered the remains with his covering. He then received a present of a horse from the immediate relatives. When it was learned that someone intended to cover the dead, a horse was at once tied to the scaffold and as soon as the body had been covered the horse was untied and led away by the man who had performed that office.[2] Gifts of value were hung all about the scaffold and these gifts were presented to those who had assisted in preparing and placing the body upon it.

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[1] Maximilian: p. 472.

[2] Ibid., p. 481.

3:Will and Spinden E-5 (1905) 1906
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The Mandan method of burial was used likewise by their 764
neighbors the Hidatsa and in a modified form by the Dakota 171
and nearly all the Siouan tribes. The Arikara, however, used the opposite form, that of interment. With them the dead were buried in a flexed position in graves (lined with stone) and the scaffold system was never used.

SECTION II.

ARCHAEOLOGY.

X 172 As has been stated, the villages of the earliest known period centered about the mouth of Heart River, with Square Butte Creek for the northern and Apple Creek for the southern limit. Several sites in this area were examined, and one site, in almost all respects the best, was somewhat extensively explored.

X 172 361 133 Of the village sites which were only incidentally studied, the most southern was that on the west bank of the Missouri near old Fort Abraham Lincoln. This village, roughly triangular in shape, occupied a bench bounded on one side by an old wash bank of the river, on another side by a deep narrow coulée, and on the remaining side by a high, steep hill. The mounds are low and indefinite in outline and evidently much disturbed. On the river side there is an extensive talus composed largely of refuse. Here there has also been a considerable landslide. On the side nearest the hill there are traces of a ditch, this side being the only one not protected by nature.

Another site, possessing natural defenses of the highest order, is located about three miles northwest of Bismarck, on the east bank of the river. Here, a promontory with a level, circular summit is almost entirely cut off from the high bench by deep precipitous ravines. The narrow neck, as shown in Map II,[1] was protected by a ditch and wall. The ditch and wall show two ox-bow like protuberances which may be the remains of a well-flanked gate. A ditch is also seen at a point on the river side where the hill-slope is less steep than usual. On the northern side, is a sort of platform along the hillside, about ten feet below the crest. This may be the remains of a ditch and wall, so placed that the higher level of the village would be a vantage point in defense of the palisades. This will be referred to as the Ward site.

[1] [facing p. 148]

3: Will and Spinden E-5 (1905) 1906
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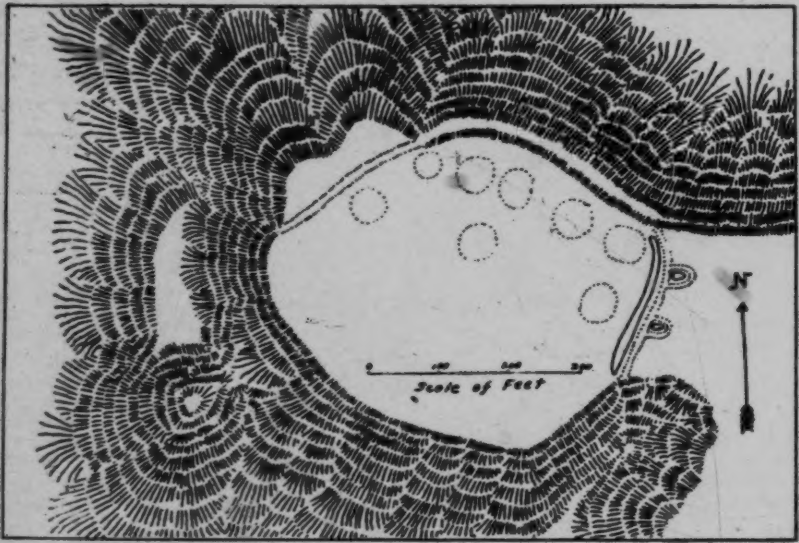
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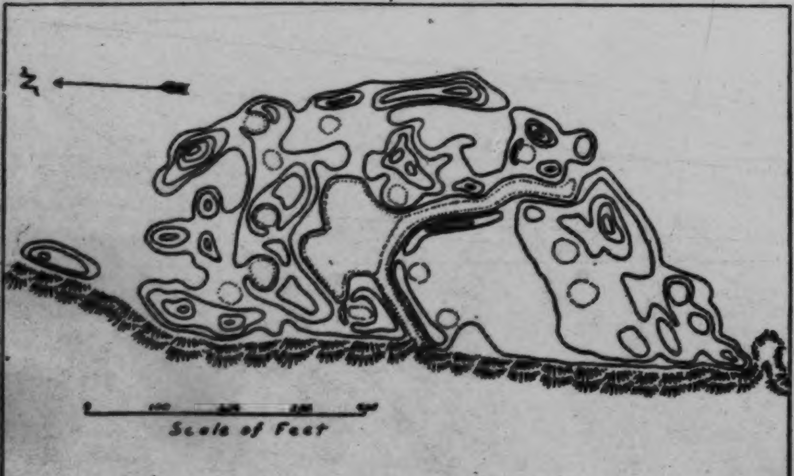
Map II. THE WARD SITE.
Dotted lines surround sunken areas.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Map III. LARSON SITE.
Dotted lines surround sunken areas. Contour interval is two feet.

[Facing p. 148]

X 172 361 133 A third village location, the Larson site, is almost devoid of any natural defenses. It is situated on the east bank of the river, about seventeen miles above Bismarck. This village was built upon the edge of a wide, level bench which ranges only about thirty feet above the flood plain of the Missouri. As may be seen by Map III,[1] the remains consist of a well-marked ditch which traverses the central portion of the site, a sunken area near one end of the ditch, and a series of mounds, the largest of which are on the margin of the site. Unfortunately, the plow has disturbed the original contours of the mounds. Moreover, there is some evidence that the river may have cut away the bank and destroyed part of the site. The position of the larger mounds on the outer edge is in accordance with the theory that they were fortifications. But the position of the ditch is something of a mystery. Instead of surrounding the site, it seems to cut across it and divide it into two nearly equal parts. Adjoining the ditch, and near the wash bank, is a large sunken area which may have been the town square.

The Burgois site (Plates XXVIII, XXIX), which furnished the principal material for this paper, is about fourteen miles northwest of Bismarck, on the east bank of the river. It is conspicuously placed on the summit of a high bluff which commands a fine view up and down stream. Above the site, the Missouri swings in a wide curve known as Mountaineer Bend, at the upper end of which is situated the Larson site previously described. Below, the river spreads into a maze of islands and sand bars. It seems reasonable that this village may be identified with the one described by Lewis and Clark as being at the head of a large island, the island having since disintegrated.

On the south, about one hundred yards from the outer limits of the village remains, is a deep ravine; to the north and east there is a gentle slope towards the level prairie land. Below the bluff, stretch the bottom lands, partly meadow-land and partly timbered with cotton-wood, ash and diamond willow.

The remains extend for thirteen hundred feet along the edge of the bluff and eight hundred feet back. They comprise, first, mounds from one to ten feet in height; second, continuous ditches; third, circular, slightly sunken house rings; fourth,

[1] [facing p. 148.]

X 172 361 133 small sunken areas marking old cache pits. Map IV[1] gives a general survey of the village. In this map the natural configuration of the land is represented in hachures, while the artificial mounds and depressions are represented, as well as the simple means at hand would permit, by contour lines with an interval of two feet.

X 172 361 The large mounds are on the outside of the village site. They form a more or less continuous chain of earthworks, outside of, and between the two encircling ditches. If Verendrye spoke the truth in regard to the neatness and cleanness of the Mandan villages, these large mounds could not well have been dump heaps as some investigators appear to think. A more natural dump heap is located along the bluff front. It is more reasonable to identify them with the earth ramparts and bastions which, he says, were wide enough to allow the game of Skohpe to be played upon them. Moreover, there is a strategic fitness in many of them in regard to shape and location. Thus Mound *a* guards admirably the approach from the ravine south of the village. Two crescent mounds, *g* and *j*, would be strongholds in defense of the village. Many of the mounds, for instance *a* and *c*, have wall-like protuberances, which may have been extended breastworks.

The mounds, as may be seen by the map, are of various shapes and sizes. Mound *a*, the largest, is nearly a perfect rectangle, except for the irregular line of small mounds attached to one corner. It measures about one hundred and twenty feet in length, and is about eight feet high. Most of the larger mounds are of approximately the same height. Two mounds, *g* and *j*, before mentioned, are distinctly crescent-shaped. The other large mounds are either oval in shape or are irregular with two or more summits.

The smaller mounds are, for the most part, between the two ditches. They are irregular in shape, and range from a few inches in height to three or four feet. A few low mounds are found outside the circle of large mounds.

There are two ditches. The inner ditch, *y, y, y*, can be traced throughout its course, but the outer ditch, *z, z, z*, appears broken. The inner ditch encircles an area about five hundred

[1] [Facing p. 151.]

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feet in diameter which is devoid of any large mounds, and is marked by house rings and cache pits. Between the inner and outer ditches there are, in addition to the mounds, a few house rings. The ditches, in their deepest portions, are not more than three feet deep, though they were originally much deeper. A cross-section of the ditch, at the point marked *u*, shows it to have been nine feet deep and twenty feet wide.

The house sites were mostly in the interior of the village. They are marked by rings each with a slight depression in the center. After the prairie grass becomes brown, these depressions are marked by green patches. The house rings vary somewhat in size, averaging about forty feet in diameter. They are close together, but are sometimes arranged in more or less regular rows leaving what may roughly be termed streets.

Small depressions mark the location of old caches. These depressions are scattered over the entire area both inside and outside the ditches. Some have dropped in to a depth of two or three feet, but most of them show only a slight hollow. Frequently they occur in groups of three or four. Investigation disclosed the presence of these cache pits under the mounds and in the house sites.

Before entering upon an account of the work carried on at the Burgois site an attempt will be made to correlate the features of this site with the descriptions of the villages as they were actually seen. Verendrye tells us of the village surrounded by a piquet eighteen feet high and a ditch fifteen feet deep by eighteen feet across. This was protected by bastions and ramparts covering the piquet. We have the ditch, two in this case, as if the village had outgrown its original bounds; and on making a cross section of the ditch it was found to be nearly as large as described. Digging on the inner side of the ditch showed no sign of the piquet. Catlin tells us, however, that the piquet was only outside. The large surrounding mounds agree with the description of bastions and ramparts. The circles mark the sites of the round earth-houses, and the small depressions show where the caches described by every visitor were located. The greatest difficulty was identifying the large village square or ceremonial place. Inside the first ditch, in

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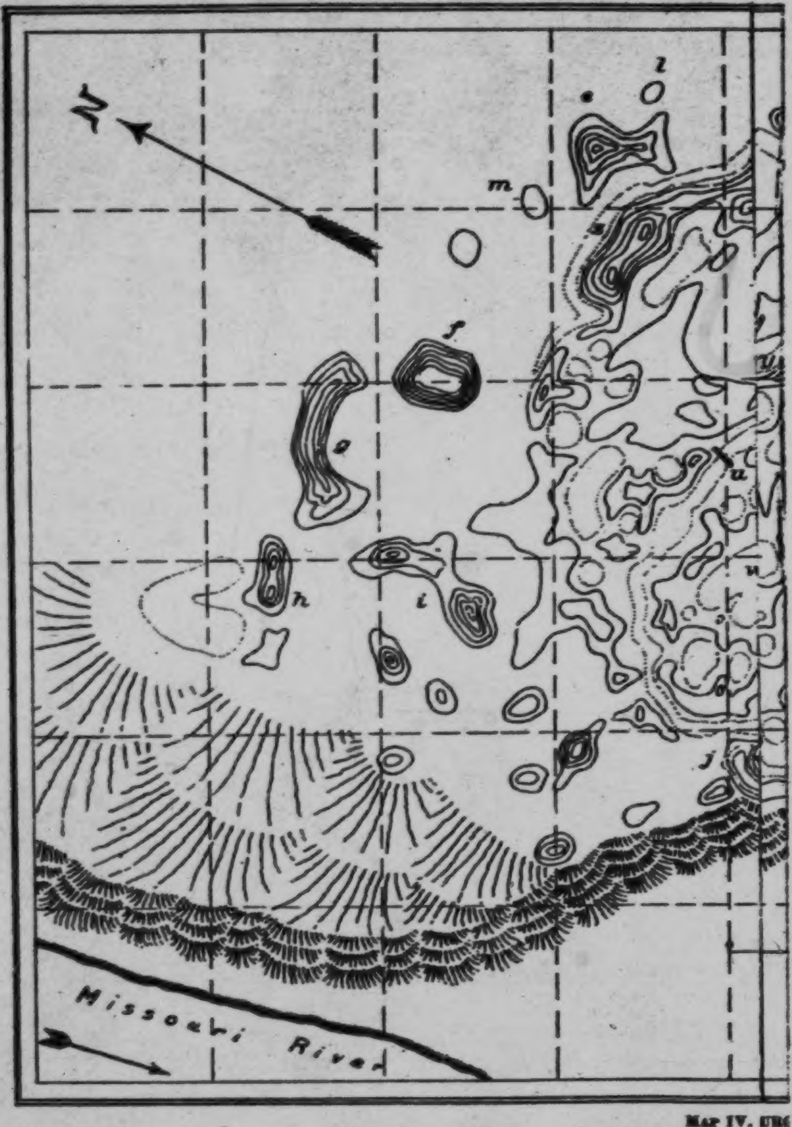
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Missouri River

MAP IV.

Contour interval is two feet.   Dotted lines

[Folded map facing p. 151 (A)]

3: Will and Spinden E-5 (1905) 1906

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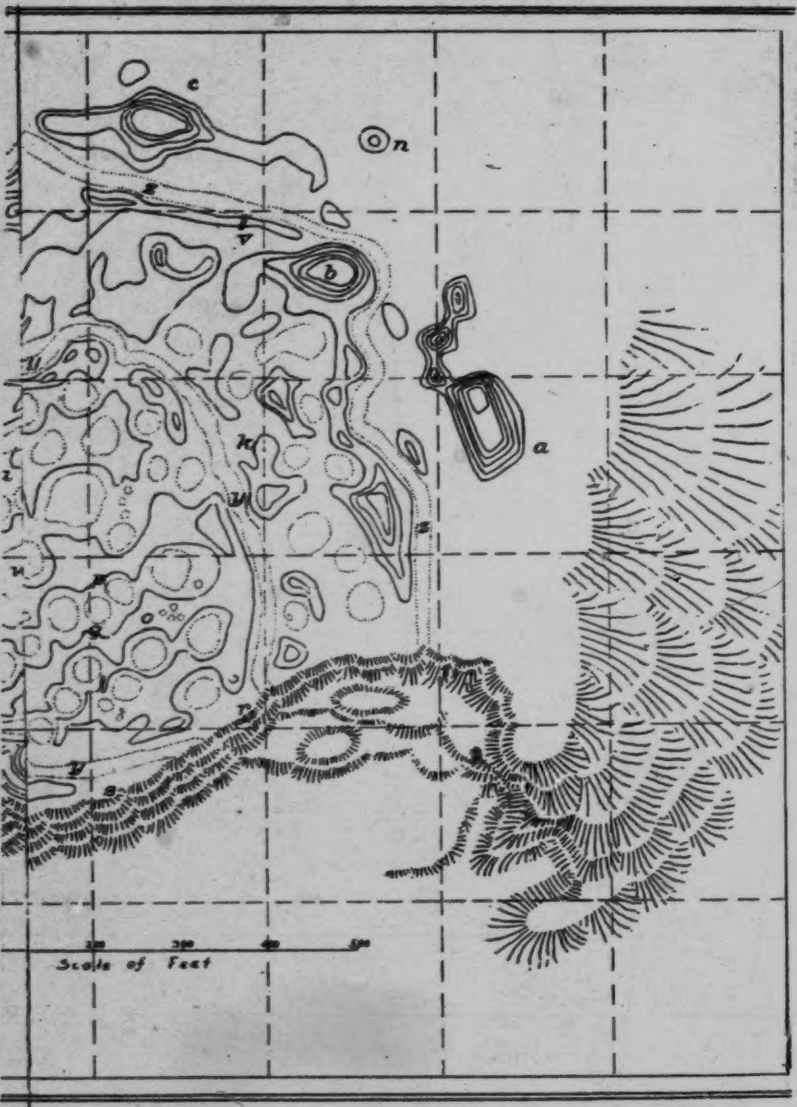
c
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b
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Scale of Feet

V. RGOIS SITE.
sunken areas. Hatchures show natural configuration

[Folded map facing p. 151 (B)]

3: Will and Spinden E-5 (1905) 1906

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X 172
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the very center of the village is an area of about the right size, but it is broken by three rings which appear to be house rings, one larger than any of the others. Between the first ditch and the second, however, there is a large open space of the proper dimensions and unmarred by any rings or mounds (*x*). It answers the description except that it is not located in the center of the village. It might be possible that the first place was originally the public square, but as the village grew beyond the first ditch the square was moved to a better site and the old one was built over. Of the cemetery, of course no trace is now discoverable, although one of the bundles of bones was found buried. It is not related how or where bones taken from the scaffold were buried, and so the find can not be connected with what is historically described.

X 172

MOUNDS:—The first work (Work 1) was done on the largest of the out-lying mounds (Map IV, Plates XXVIII, XXIX, XXX). This mound is about a hundred and twenty feet long by sixty or seventy wide. It slopes up gently from the west end for about thirty feet, then runs along almost flat until within ten feet of the other end, where it suddenly drops off. It is almost rectangular in shape. The west end of the mound was divided off into squares of five feet, and excavation was then begun along the entire end, and carried into the mound, preserving at all times a vertical face. This mound rested on a solid clay hardpan, from which the sod seemed to have been cleared before building the mound. The excavation was always carried a little below this hardpan level. The mound seemed to be built of refuse spread on in layers. Very little in the way of valuable remains was found on the edge of the mound, small fragments of pottery, a pocket of rocks, a pocket of bone, charcoal and pottery and two or three pockets of large bones, charcoal and pottery chips being the only things noted. These pockets all began about one foot below the surface of the mound. At the beginning of the excavation, from the surface to hardpan the depth was eight to twelve inches; by the time the work had been carried in fifteen feet the face of the excavation was from one and a half to two and a half feet high. At about the six-foot line the first of a

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NQ17 Mandan NQ17

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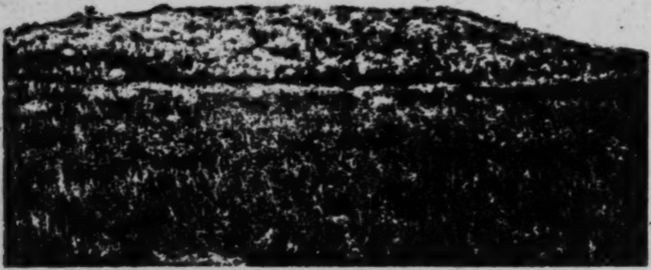
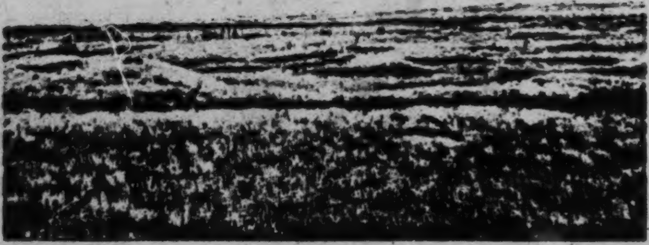
1. GENERAL VIEW OF BURGOIS VILLAGE SITE.



2. MOUND A, BURGOIS VILLAGE SITE.



3. DITCH AND HOUSE RINGS, BURGOIS VILLAGE SITE.

[facing page 152]

HELIOTYPE CO., BOSTON.

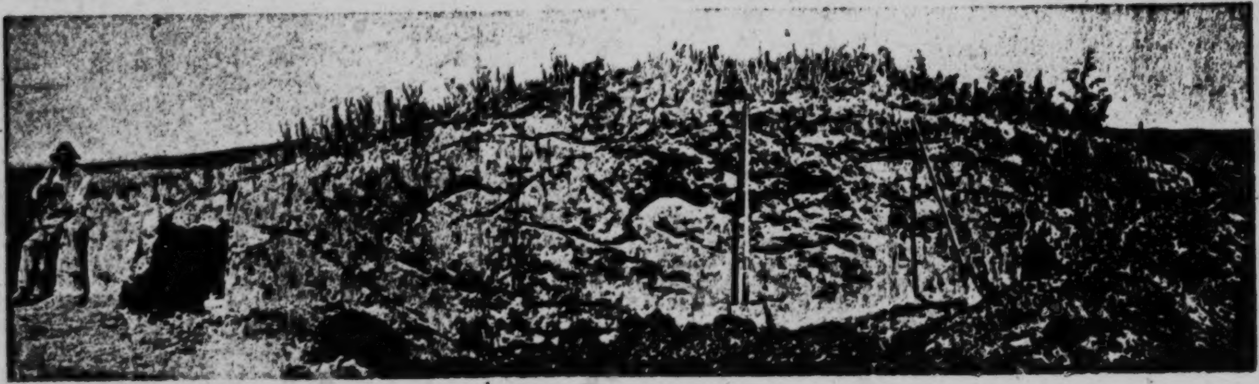
x 172 number of pits was found (Plate xxx, *b* on ground plan). This one was about four feet four inches deep from the surface of the mound. It was hollowed out in a bottle-like shape and contained a quantity of broken pottery and bones; some of the pottery fragments fitted together. Over its top was a small layer of decayed wood with some charcoal and a few kernels of burnt corn, the first found. Traces of decayed grass appeared on the sides. Next to this pit was a shallow basin (Plate xxx, *c* on ground plan) eight to twelve inches deep, in the center of which was a buffalo skull facing to the north and surrounded by considerable pottery and bone chips; over the basin was an ash layer. A few bone implements were found scattered in the pit and basin. Nearly half a bushel of broken stones came from the bottom of the pit. On the north of the pit (*b*) was another (*a*), about the same size, which almost joined it. In the upper part of this second pit was much broken pottery and bones, charcoal and occasionally ashes. At the very bottom of it was a human skeleton in a flexed position. There was no pottery and no remains of ornaments about the body, but a bone hoe lay above it and another was below it. The skeleton lay on a brown layer which may originally have been a robe. This pit was four feet six inches deep from the surface of the mound and four feet two inches in diameter. It was of the usual bottle shape. A cross section of these three pits is shown in Plate xxx, section III. This also shows the ash layer which extended over the pits. Another ash layer (Plate xxx, section II) began just over these pits about six inches below the surface of the mound and contained a considerable quantity of broken pottery and bones. As the face of the excavation was moved back this layer sank to a depth of one foot from the surface and became continuous over the whole of the mound. Other smaller ash layers appeared lower down and a little further in.

Another pit (Plate xxx, *j* on ground plan) began at twelve feet in, and differed considerably from the rest. It did not have the usual shape and continued back into the mound, covering a much greater area than any of the others. It was filled with refuse in which were easily distinguishable layers of burnt corn, bone chips, and charcoal. Another basin (*g* on ground plan)

X 172 also occurred in this part of the digging but presented no distinctive feature, being filled with the usual refuse. Most of the best pottery at this point came from the blanket ash layer. At the twenty-foot line another pit occurred (*h*). It contained ashes, bones, charcoal, burnt wood and a number of flint and bone implements, both broken and whole. Near the bottom was a deposit of very fine bone chips, and a number of irregular layers half an inch thick of soft black clay, resembling the clay of the pottery. This pit was shaped much like the others. The ash layer here was about one foot below the top of the mound. At this point there was also a light layer of soft earth about four inches thick. Below this for some two inches was a layer of tightly packed earth, and the pit was filled with a conglomerate mass of rubbish, across which ran thin layers of crumbly red earth, burnt grass and ashes. The dimensions of this pit were: diameter six feet, depth five feet. At the twenty-five-foot line three connected pits were discovered (*l*, *m*, *n*) over the tops of two of which stretched a layer of burnt grass and sticks. Over all three pits the blanket ash layer dipped to about two feet below the surface of the mound, and the soft soil above contained a considerable quantity of pottery fragments and bone implements. Just before reaching these pits a series of four post-holes (*p*, *q*, *r*, *s*), running for about fifteen feet, was found. These contained the remnants of rotten wood and of sticks about two inches in diameter. Traces of these post-holes began a short distance from the surface and extended down to a little below hardpan. On this line were also found two small cylindrical pits. One (*i*) about one foot in diameter, went down some eighteen inches below the clay hardpan and contained hard-packed, black earth with a few bones and pottery chips. The other was somewhat more shallow and opened through a small hole into one of the large pits (*n*).

Near the thirty-foot line the front of a human skull was found in a layer of loose earth and rubbish. Just beyond this line began an extremely irregular pit (*o*) containing very few pottery fragments but a great many large bones, some of them broken. Among these was an antelope skull. At the same point and for twenty feet across the center of the mound x172

[facing p. 154]



CROSS-SECTION OF MOUND A, BURGOIS VILLAGE SITE.

HELIOTYPE CO., BOSTON.

x172 was a heavy layer of soft ashy earth from one and a half to two and a half feet thick. At the bottom of this was a well-marked clay layer; below this again came some loose earth, then another ash layer and lastly the clay hardpan. Thin layers of burnt material, marked *y*, *y*, on Plate XXX, sect. II, were also found. In the light ash layer most of the finds were made within two and a half feet of the surface. Near this point the valuable material began to decrease in quantity. Pit *o* proved to be very large. It went down to a depth of about eight feet from the surface of the mound and was some six to seven feet in diameter. Another pit (*k*) was found upon this line which contained very little, and opened into the large pit (*j*) at the south end.

Owing to the fact that the purpose of the exploration was to get a general idea of the site, it was thought best to leave the first mound, after the excavation had been carried in some thirty-five feet, and to try other mounds of different appearance. The first examined was a small oval mound (Map IV, *k*) measuring sixteen by twenty-five feet, and not over one and a half feet high at its highest point in the center. Half of this mound was removed down to the clay foundation, but practically nothing, except occasional pottery chips and one stump of a wooden post, was discovered.

The next work (Work 2) was on one of the large mounds (Map IV, *b*) abutting on the ditch on the inner side. It is rather more circular than the former one, about eighty feet long, sixty-five feet across, and eight to ten feet high, being somewhat higher and more rounded on the top than the other (*a*). Through this mound at about the center a trench ten feet wide was cut entirely across from east to west, the trench was divided into rows and squares, there being thirteen rows of five feet each across the mound. The earth was soft and full of bones, pottery chips, and burnt vegetables. This mound was likewise built on the yellow clay hardpan from which, however, the sod seems not to have been removed except over parts of the bottom where there were pockets or pits.

The excavation was commenced at the same time from each end. The earth of the mound was easily removed and was full of refuse. At the east end there was located, in the

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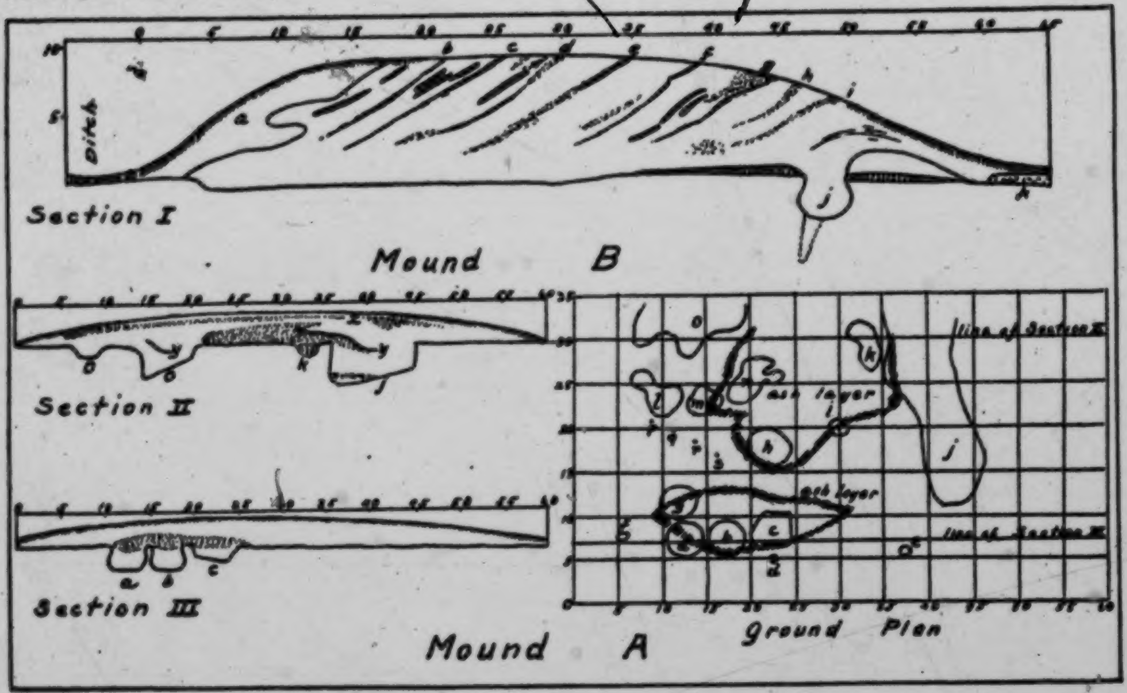
X 172 first ten feet, a large depression extending over the whole bottom of the cut and going below hardpan from a few inches to a foot. The bottom of this depression was covered with small boulders, and most of the finds in that section were made just above these boulders, the first good hammer-head being discovered there. In this part of the trench, just below the surface of the mound, was found a thick layer of burnt corn cobs and other burnt material. As further progress was made, from ten to fifteen feet in, the earth was full of bones and flint chips with a number of bone implements. As the twenty-foot line was approached, however, the bones became scarcer and nearly all of the finds consisted of pottery. The earth from the surface to the bottom contained layers (Plate xxx, sect. 1, *b*, *c*, *d*, *e*, etc.) of crushed bone or burnt materials and ashes, usually not over three inches thick. These layers persisted through the whole mound keeping at a fairly equal distance apart, sloping off to the north and south as the mound itself sloped off, and dipping rather steeply to the east. From the twenty-foot to the thirty-foot line nothing unusual was seen, though the best pottery was taken out there, as well as some bone implements and some charred beans. From the twenty-five-foot to the thirty-foot line a considerable quantity of good pottery fragments came to light, a number of which fitted together. The pottery fragments seemed to be more and more numerous as the center of the mound was approached. An interesting find, in this section, was a small pocket some three feet from the surface which contained squash and sunflower seeds and some small Chenopodium seeds, all somewhat charred. The section from the thirty-foot to the thirty-five-foot line contained nothing notable, the pottery and bone pieces continuing as before, but in somewhat smaller quantities.

From the thirty-five-foot to the forty-foot line, the finds consisted of bone implements, awls and hoes. In this section, about two and a half feet from the surface, was a mass of very white ashes, about one foot in diameter and four inches thick. At about the forty-foot line a pit was found (*j*), about seven feet in diameter and running down two to three feet below the old soil level. From the bottom of this pit again a small pocket went

X 172


Ditch
a
b
c
d
e
f
g
h
i
j
k
Section I
Mound B
Section II
Section III
a
b
c
Ground Plan
ash layer
ash layer
line of Section II
line of Section III
Mound A

[Facing p. 156]

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x172 down into the yellow clay; this smaller pocket was of rather irregular shape and contained nothing of value, nor did the larger pit itself. In this section, above the pit and some three to four feet from the surface, was found the first copper, a crudely made copper bead.

The section from forty to forty-five feet showed nothing of particular interest except a pocket containing about a quart of flint chips. A number of bone implements also came from this section. Here, also, was found a small ring of what appeared to be twisted bark. The surface of the mound for the remaining fifteen feet was sodded over; below this and above the old sod was a heap of hard clay, such as might have been excavated from pit *j*. Before leaving this mound a word or two more should be said about the stratification of the material used in its construction. The mound has a very steep slope down to the ditch on the east side, and slopes off much more gently on the west. The layers already mentioned run upwards from east to west, beginning near hardpan, and occurring at almost equal distances apart. Five of these layers were of burnt material with an ash layer just above them in several cases. In two places just above the ash layer was a thick layer of broken bones. These layers were all approximately parallel and between them was the light earth previously mentioned. No human bones whatever were found in this mound, but all sorts of animal bones occurred in profusion.

CACHE PITS: — The next work done was the clearing out of three caches which were marked by three small sunken places rather close together, Works 4, 5, and 6 (marked *o* on Map IV, and shown in more detail in Plate XXXI.) One of these, Work 6, proved of very little interest. It went down to a depth of five feet nine inches where a hard, undisturbed clay was encountered. The pit itself was filled with soft earth containing small bits of bone, stone and pottery. In the hard clay bottom were several small pockets, one of which contained a ball of black clay evidently the sort used for making pottery.

Work 4 was more interesting. At a depth of three feet, two large pockets filled with ashes, charcoal and earth mixed, were found branching off from the main pit which was lined with a

X
172 light yellow clay. From this excavation came many bones and stones, a good deal of chipped flint and some large pottery fragments and broken implements, and a fragment of a catlinite pipe. The two large pockets were excavated and finally resolved themselves into two pits, giving a series of three pits, each joined with the other. The general depth of the three was about six feet. In these pits there were many boulders and much ashes and burnt grass. Work 5 was another pit of the same sort, and it, too, had a connecting passage with a side pit, somewhat shallower than the main one. These two pits resembled the others in every way except that they were slightly smaller. In this Work, however, there was found a number of rather important articles. Among these were some excellently made awls of bone, some well-made flint implements, a number of large pieces of pottery many of which fitted together, and the best piece of worked bone found during the exploration. This is a highly polished implement with a crane's head carved on one end (Fig. 11).

House Sites:—The next work (Work 7) was the partial excavation of one of the large circular depressions, (Map IV, *p*) presumably house sites. A trench was made across the hollow, a little to one side of the center. From the middle of this trench the excavation was carried in towards the center of the circle, as shown in Plate XXXI. The original trench went down to a depth of about two feet where a solid clay hardpan was struck. A few ash layers crossed the trench, and in two places posts and a series of small sticks were found. The excavation toward the center uncovered a large bed of white ashes, under which was a bed of red ashes. At about the center of the circle was a mass of rounded stones. One of these, almost a perfect oval, was about one foot long by seven inches in diameter, and had been pecked into shape. It is possible that this was one of the stones used in shaping pottery. The average depth of the clay hardpan was about two feet, over the area excavated. A number of smaller separated ash layers were noted a little beyond the center, and still further on, near the other side, was a depression which proved to be a cache or pit. This was cleared out and showed the

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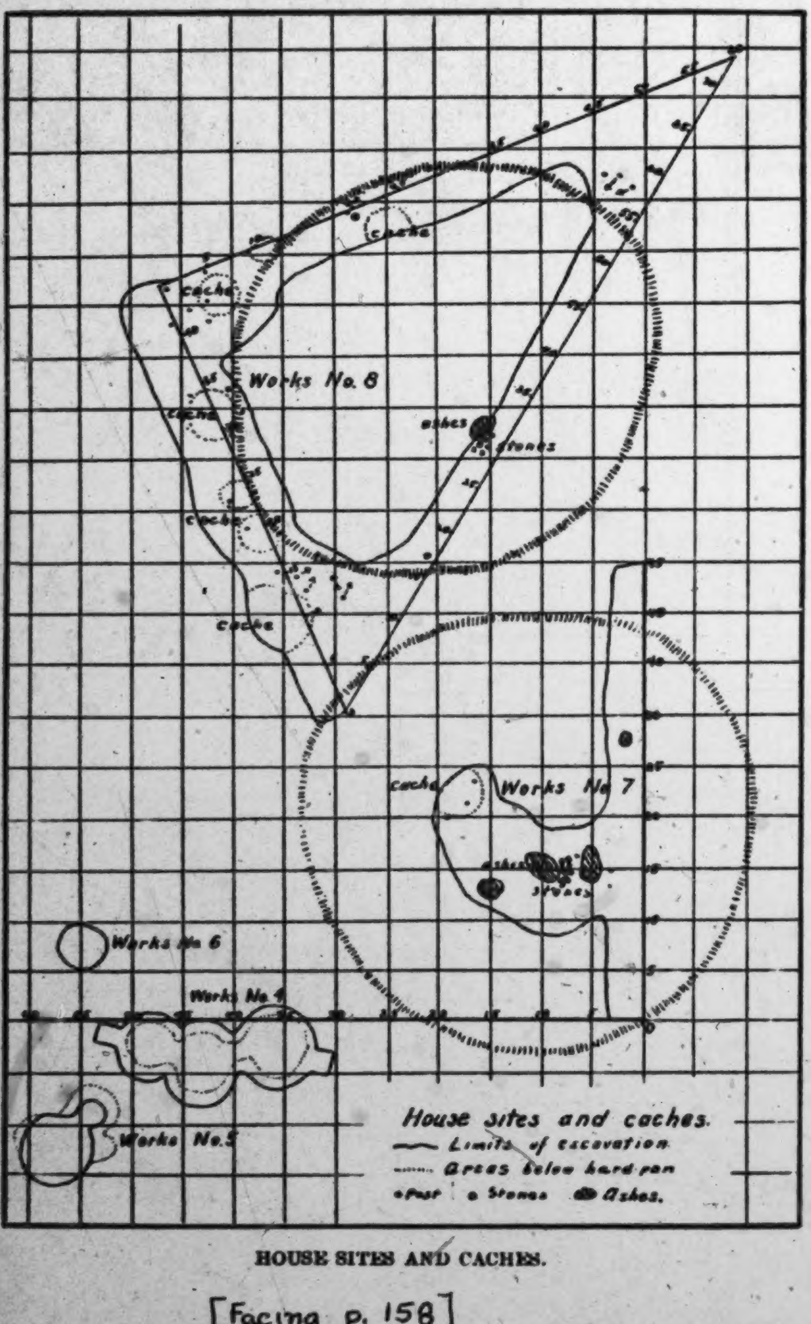
cache
cache
Works No. 8
cache
ashes
stones
cache
cache
cache
Works No 7
ashes
stones
Works No 6
Works No 4
Works No.5
House sites and caches.
Limits of excavation
Areas below hard-pan
Post
Stones
Ashes.

HOUSE SITES AND CACHES.

[Facing p. 158]

172 usual bottle-like shape. The remnants of posts of considerable size were found, and their location is noted on Plate XXXI. The pit contained a good deal of broken pottery, worked stone and bone, and the remains of corn, beans and squash seeds. The best piece of pottery was found here. It was in fragments, which formed, when put together, about one quarter of a large pot (Plate XXXVII, fig. *b*).

The next work (Work 8) was the partial excavation of another and better-marked house site, shown in detail in Plate XXXI. A trench was first laid out along the outside bank on the west side for a distance of forty-five feet. This was divided into nine squares of five feet each from the south to the north. For the first seven feet a hardpan of clay was found at a depth of two feet. The next five feet contained a rather irregular pit which was filled with soft earth cut by several ash layers. One of these layers occurred at a depth of two feet, another at four feet and a third at six feet. The soft earth contained a great many animal bones, but very few that had been worked. This pit went down to a depth of seven feet, but showed nothing unusual either in its construction or contents. For some three feet beyond this the solid clay continued and then the base of a large post was found. Immediately beyond the post another pit occurred. This pit was shallow and contained nothing except a fairly thick layer of decayed grass. At the upper edge of this pit was another post, and immediately adjoining came another pit. This one was about four feet four inches deep and five feet across. It contained a large quantity of small bones and many large ones. Two ash layers cut this pit diagonally, one at about three feet down and another at four feet. Just above one of these ash layers was a layer of small broken bones. For the next four feet of the trench the clay hardpan continued, but over the first two feet of this clay was a layer of flat stones. After the clay section came another pit of larger size than the others. This pit contained the usual soft earth, through which ran two layers of burnt material containing charred seed, corn, beans, and squashes, mostly too much burnt to preserve, though the stem end of a squash was found in fairly good condition. The whole pit held considerable quantities of charred matter x772 and a few pieces of chipped stone, some burnt clay, and a few burnt bones. The depth of this pit was about six feet, five inches, and the diameter was nearly seven feet. Just above it, on hardpan level, the second piece of copper, a small flat fragment apparently cut from a larger one, was found. On the east side of this pit three large posts occurred. For the next five feet the clay continued unbroken. Then another post was found, and at five feet beyond this still another post was discovered.

From the end of this trench another was started at right angles running east, still along the ridge about the depression. In the first five feet of this trench were found four posts (Plate XXXI). On the inner side of the ridge here, almost in the depression, was found another pit. This had probably been filled up by the falling roof, for the contents had settled away from the sides leaving a large hollow space and showing well the bottle-like appearance of the pit itself. This pit went down to a depth of over eight feet, and was the most symmetrical one found. The contents consisted of earth with small bits of rubbish scattered through it, just such material as might have fallen into it from the roof and sides. At eighteen feet further on a post was found, and in the near neighborhood was another pit which presented no unusual features.

Another trench was dug, connecting the ends of the other two and running across near the center of the depression. No pits were found in this trench, but at about the fifteen-foot line was found the base of a large post, one foot in diameter, which was hewn square. At the thirty-foot line was found the remains of a fireplace. It was depressed below the clay hardpan and was surrounded by a wall of stones, which was rather irregular, perhaps due to later disturbances. The diameter was about six feet and the area within the stones was filled with a thick layer of ashes. Near the stones were found portions of two broken stone implements, one the half of a large maul, the other the half of a stone axe.

Besides the posts mentioned, a number of smaller ones were found, some lying diagonally in the ground (shown in Plate XXXI, with arrows pointing in the direction in which they lay)

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as if broken off. A number of small flat pieces of wood were found near the outer edge of the excavation, possibly pieces of the slabs, and through most of the earth removed small bits of sticks one half to one inch thick were scattered. These may have been part of the willow matting with which the roof was usually covered. The pits, in all cases but one, were solidly filled in and had a clay layer over them, and it is probable that they had been filled up before the house was built. Henry tells us that houses were constantly being torn down and built again in new places. The one pit which, when found, was not completely filled, probably existed at the same time as the house. Morgan[1] in his description of the house site mentions the existence of such caches within the house, and shows it in the diagram reproduced on page 107.

[342]

The dump heap along the bluff side was investigated at the points *r*, *s*, and *t*, as marked on Map IV. Excavations were made in four places and it was found that the deposit of rubbish and ashes went down to an average depth of about three and a half feet. Nothing unusual was found here, the finds being mostly broken pottery, and broken stone and bone implements.

After this a cross-section was made of the ditch in the deepest place at the point *u*, on Map IV. The original ditch was about nine feet deep with a flat bottom. The distance from side to side was about twenty feet. The depth from the bottom of the present ditch, at the center, to the original bottom was six feet. For about two feet above the bottom of the original ditch there was a layer of sand and just above this was a black layer about six inches thick which contained considerable charred matter. Above this layer was a considerable deposit of animal bones, mostly of buffalo. The remainder of the distance to the surface was filled in with ordinary earth containing occasional bits of broken bone and pottery.

A cross-section of the ridge on the inner side of the ditch was next made at the point *v*. The depth to the original surface was a trifle over three and a half feet, and the earth was full of refuse, but no trace of palisades was found here.

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[1] L. H. Morgan: Stone and Bone Implements of the Arickarees, 21st Ann. Rep. of the Univ. of State of N. Y., on the State Cabinet of Nat. Hist.

The last work was done on one of the low mounds beyond the outside ditch (Map IV, *l*). The height of this one was not over one foot at the center and its diameter was about thirty feet. A trench was run across the mound from south to north cutting it at the center. The earth of which the mound was constructed was soft and full of bone fragments below the sod. For the first ten feet of the trench this soft earth went down to a depth of from eight inches to one foot where the line of old sod was reached. Fifteen feet from the south end of the [764] trench there was a pile of human bones indicating a burial according to the Mandan method. This was only about ten or twelve inches below the surface of the mound. The bones were in a compact bundle, several of them had ends broken off, and some of the small ones, as well as the skull, were missing. Under one corner of this skeleton was part of a child's skeleton, in very poor condition, the skull being in pieces, and many of the bones missing. Over the two skeletons there was a thin layer of brown material resembling decayed wood. In the earth about these human remains was a considerable amount of animal bones, and immediately below was a very large pit.

This pit was not of the usual shape. At its edge twelve feet from the beginning of the trench it was eight feet deep; under the skeleton the depth decreased to five feet three inches, and at the eighteen foot line it was four feet six inches deep. The trench was not excavated beyond this point, but from the angle of the slope the pit would seem to have been from fourteen to eighteen feet in diameter. The earth in the pit contained a large quantity of refuse, bones and bone implements and ashes. There was a distinct ash layer at about two feet below the surface. A large quantity of pottery fragments occurred in the pit and a number of large and very well-made pieces were found.

Two other low mounds (*m* and *n*) were investigated but nothing of any value was found in them.

Time prevented any further work on the site and much was left which should have been done. However, a fairly accurate idea was obtained of the whole site. Two of the larger mounds were excavated sufficiently to show their con-

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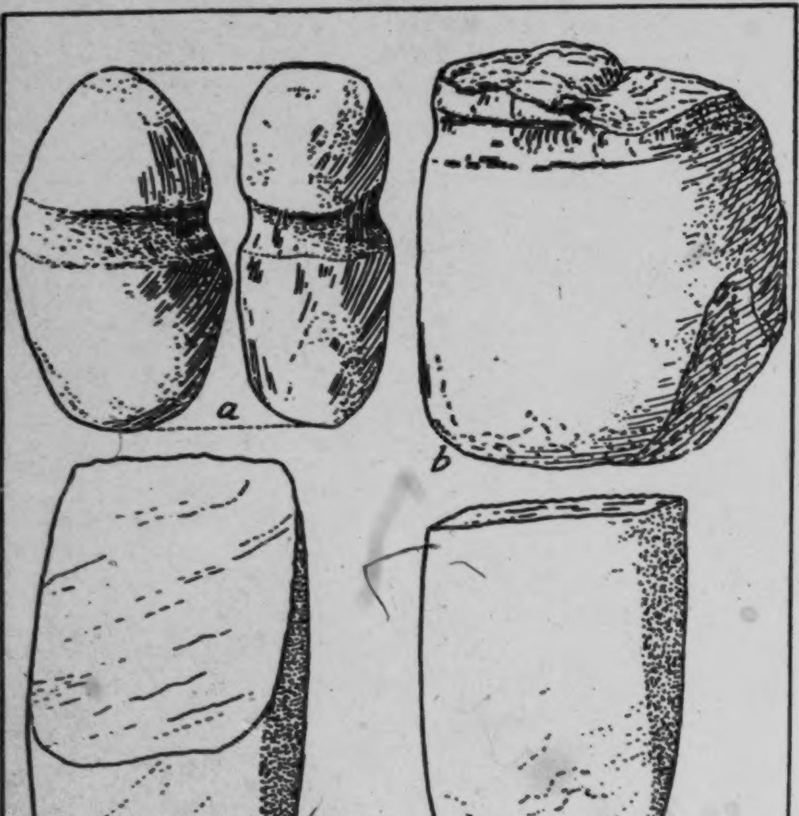

LARGE STONE OBJECTS. ½

[Facing p. 162]

x172 struction, and two of the large depressions were partly explored and established as house sites. A number of cache pits were cleared. The size of the ditch was ascertained and work was done on all the types of remains within the ditch. The smaller type of mound was also investigated, as well as the dump heap along the bluff. The only thing which was not located was the palisade described as on the outer side of the ditch.

x172 324 412 STONE:—Stone was used by the inhabitants of this old village as material for many articles, large and small. The larger stone objects comprised hammers, axes, celts, discoidal mullers, and large elliptical chipped blades. The smaller specimens may be classed under knives, arrowheads and spearheads, scrapers, chippers, and decorated stones of uncertain use. Some of the implements probably had other uses than those suggested by this list.

Although few large stone pieces were found, the variety was considerable. Plate XXXII, fig. *b*, represents the lower portion of a heavy granite maul. It is in a crumbly state owing to the action of fire. The groove is narrow but well marked, and is without any protruding rim or flange. The striking surface is flat and somewhat elliptical in shape, measuring four inches in its longest diameter.

Plate XXXII, fig. *a*, shows a hammer of red quartzite. This implement, made from a stream-worn stone which did not require much shaping, is divided into two nearly equal parts by a well-made pecked groove. This hammer was found in a boulder layer on hardpan at the east end of Work 2.

One crudely made grooved axe was found, the material being a hard greenstone, probably diorite. The two edges were roughly chipped into shape and the wide, shallow groove about the middle was made by grinding or pecking.

Two axes, showing much finer workmanship, are without grooves, and belong to the class known as celts. These are shown in Plate XXXII, figs. *c* and *d*. They are made of pecked and polished diorite and are bilaterally symmetrical.

Four discoidal stones were unearthed. Two of these were in perfect condition and are shown in Plate XXXII, figs. *f* and *g*, the other two were broken. These discoidal stones are of granite

X 172 324 412 or quartzite, well shaped, and measuring from an inch to an inch and a half in thickness, and from an inch and a half to three inches in diameter. Most of the signs of grinding and wear are shown on the circumference. One shows discoloration on both of the faces. The use of these stones is problematical. They may have been used as mullers to grind paint, as the discoloration on one of them suggests, or they may have been used in some game. They resemble the Chungkee stone of the Southern tribes. In the Mandan game of Skohpe, stones described as "rings" were used.

X 172 324 411 The large chipped blade forms were probably put to a variety of uses. Some may have been used for lanceheads and some for spikes to be inset in war clubs. The largest of these blades is shown in Plate XXXIII, fig. *e*. It measures about six inches in length and is made of a gray chert or fine grained argillite. Shorter blades of the same material are shown in Plate XXXIII, figs. *a*, *b*, *d*, *f*. These are all roughly chipped, and do not present much of a cutting edge. Figs. *g* to *k* illustrate various forms of other large blades.

X 172 324 412 The characteristic forms of the smaller implements are shown in Plate XXXIV. The knives (Figs. *a*, *g* to *k*) show a variety of shapes. They average about three and a half inches in length and about five eights of an inch in width. Some are double pointed, and some are squared off at one end. Some are symmetrical in outline and others are not. The material commonly used is a fine grained gray quartzite, but sometimes specimens made from dark colored flints are met with. Many knives were found in the mounds and in the cache pits.

X 172 324 411 It is impossible to draw any definite line between the different classes of small implements. Thus, what are termed spearheads may have been used for knives, and vice versa. Arrowheads differ from spearheads only in size, the former seldom being over one and a half inches in length. A fine leaf-shaped spearhead is shown in Plate XXXIV, fig. *d*. It is made of brownish flint. A wide-stemmed, elliptical one of the same material is shown in Fig. *r*, while Fig. *o* shows a perforator.

Arrowheads of most of the common shapes were found, although they were not very abundant. The material used

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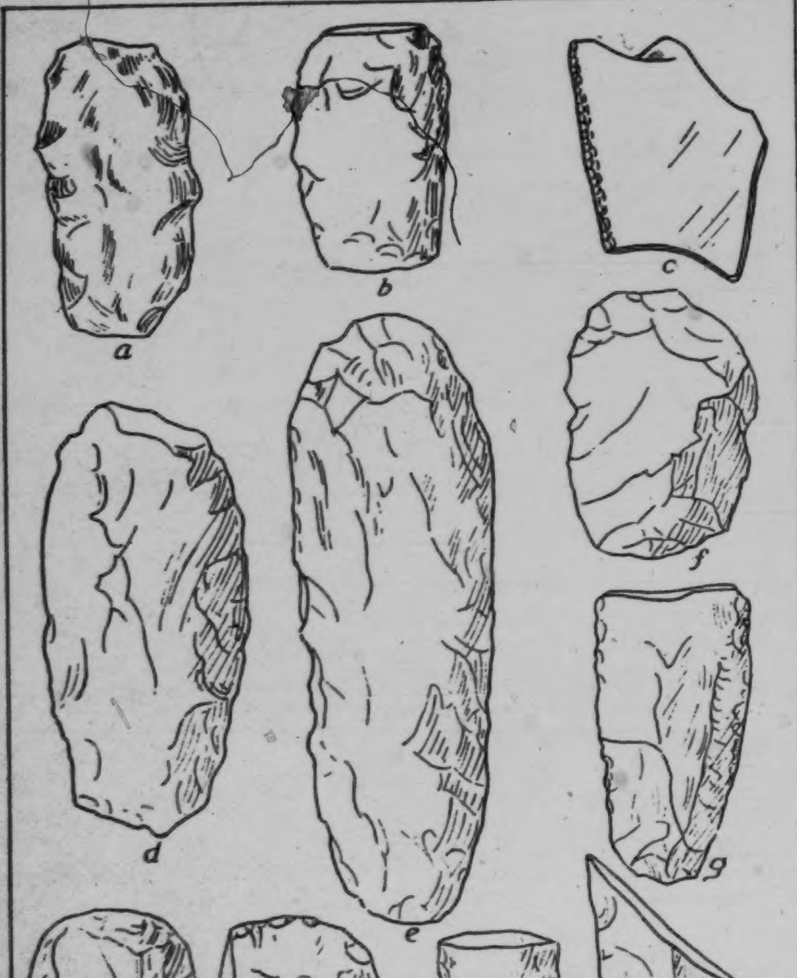

LARGE CHIPPED BLADES. ½

[P. 164 (A)]

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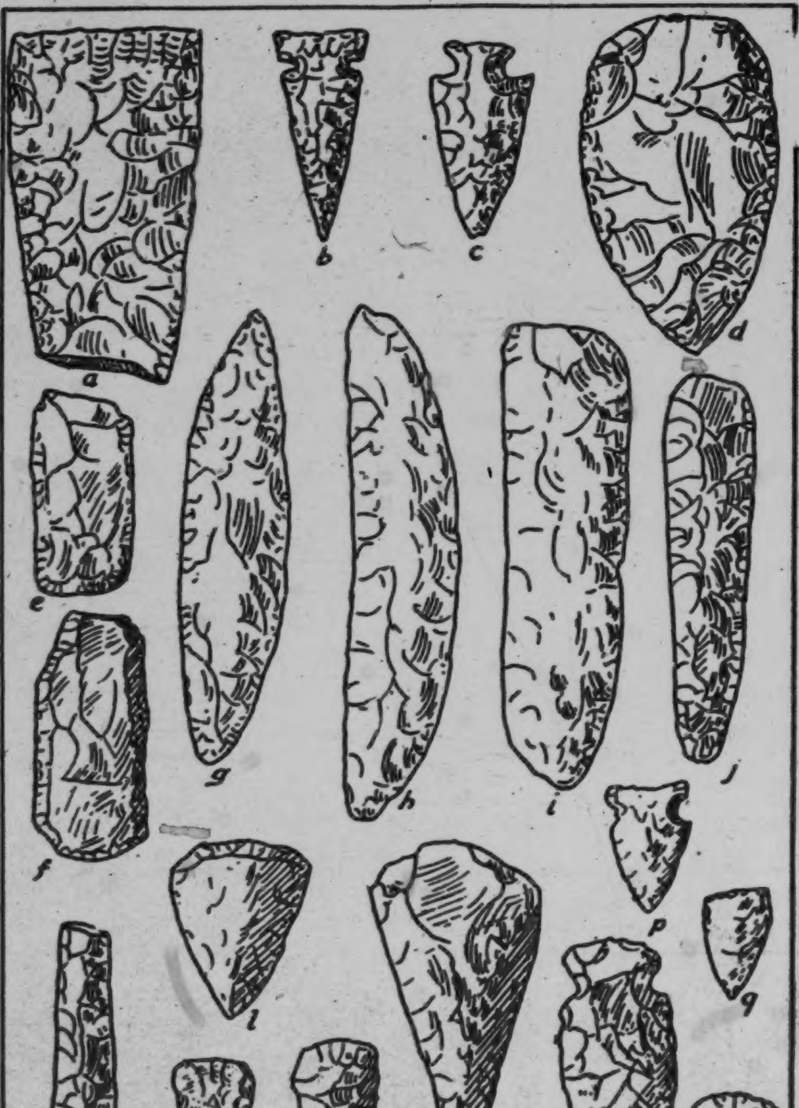
a
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SMALL STONE OBJECTS: KNIVES, PERFORATORS, SCRAPERS, SPEARHEADS, AND ARROWHEADS. ½

[P. 164 (B)]

x 172 324 for arrowheads was largely flint. A selection of the different types is shown in Plate XXXIV, figs. *b*, *c*, *m*, *n*, *p*, *q* and *s*.

[411] x 172 324 412 Flint, chert, and quartzite scrapers were in great abundance. Some were of the "turtle back" form (Plate XXXIV, fig. *l*), flat on one side and convex on the other. Some were irregular flakes with one chipped edge (Plate XXXIII, fig. *c*). Some were roughly rectangular in shape (Plate XXXIV, figs. *e* and *f*), while others were leaf-shaped (Plate XXXIII, fig. *h*).

Flint chips were often found in layers and pockets. Near the bottom of the central cache pit in Work 5, an extensive layer of red and yellow flint chips was encountered. Double handfuls of flint and chert chips were found in various places in the mounds.

Pieces of pumice-stone were often met with in the different village sites. They were used, apparently, as whetstones to sharpen bone awls, and are sometimes deeply grooved as a result of such grinding. Other stones were also used for this purpose.

[171] Plate XXXII, fig. *e*, shows a rasp for smoothing arrowshafts. It is made of a coarse yellow sandstone. It is very similar to rasps found among the Omaha.

Pebbles showing at the ends an abraded surface were common objects in the mounds and cache pits. These were chipping stones and were used in working flint and chert. They were of various kinds of stone, red jasper, diorite, quartzite and sandstone being noted.

x 172 324 Water-worn boulders, seldom over six inches in diameter, were common in all parts of the site. They were such as could be picked up on the prairie or buttes. Layers of boulders were found around the fireplaces in the two house sites explored. An extensive layer was found on hardpan in the eastern end of Work 2.

Some of these boulders gave evidence of having been broken. One showed signs of pecking. This one was oval in shape, and may have been used in shaping the bottoms of pots.

There still remains for consideration a class of ornamented stone objects of uncertain use. Three rectangular flat stones come under this head. All of these stones have diagonal cross

X 172 324 markings on one side. The largest is shown in Fig. 4, *a*. It is about two inches in width by two and a half in length, and a quarter of an inch in thickness. One face is smooth, and the other is marked by double diagonal lines which pass through an indentation in the center. Each edge has three notches. Fig. 4, *b*, shows a similar stone object, smaller, and somewhat longer in proportion. It is made of catlinite. This has also three notches on each edge, but the diagonal lines are triple, though not so definite, nor so deeply incised. Fig. 4, *c*, shows a cruder stone object of the same general character as the two above described. The material is a yellow clay-stone. The stone is rudely shaped and marked. It has no notches on the edge. On one face is a diagonal marking, and on the other a series of lines, some of which cross a line running lengthwise of the stone.

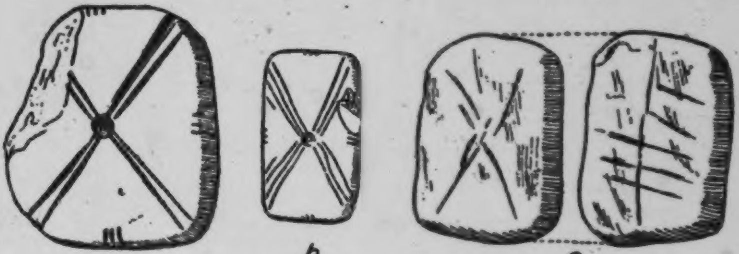

Fig. 4. RECTANGULAR STONE OBJECTS. ½

The stones may have been used as counters in some sort of game. Somewhat similar articles of bone were found, one of which is shown in Plate xxxvi, fig. *r*.

A small piece of the tubular base of a pipe of catlinite was uncovered in the refuse, near the bottom of the central cache-pit in Work 5.

X 172 386 Besides the worked stone and boulders, various mineral paints and colored earths were found. Lumps of fine yellow clay, which may well have been used for paint, were collected in the mounds. Small quantities of red paint were found in loose lumps and adhering to fragments of pottery. Pieces of mica-schist, deeply tinged with iron, may have been ground up into brown paint.

Potter's clay was commonly met with in small quantities. It was almost black, and very fine grained. Sometimes the clay was found pure, and sometimes it had already been mixed with coarse sand, made by burning and pulverizing granite. 172x 323

SHELL:—The shell remains in this village site were scanty. No layers or heaps of shells were found in any of the excavations, and none were in evidence in the dump. Thus it is to be presumed that shell-fish were comparatively little used for food. A few snail shells were found in the mounds, and a few shells of the fresh water mussel, or Unio, were found scattered widely among the refuse in the mounds, caches and house rings. Some of the latter were also found in a house ring at the Ward site. 172x 321

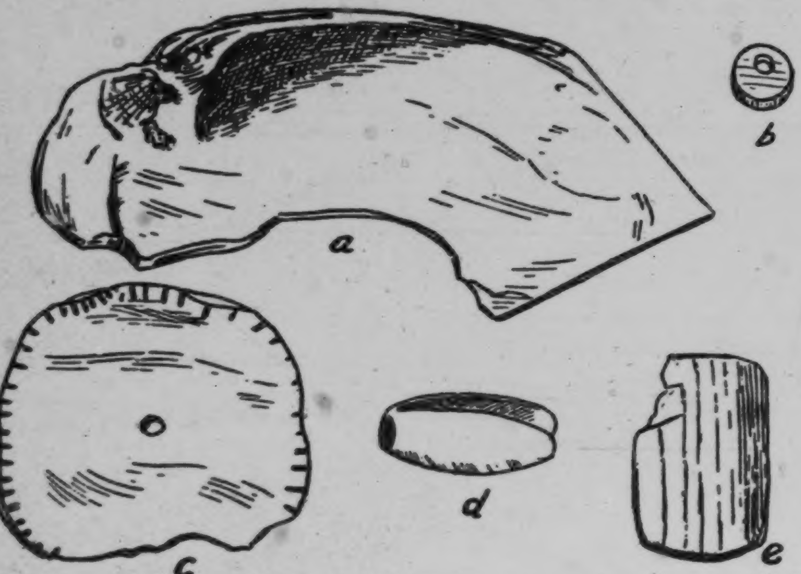

FIG. 5. SHELL OBJECTS. ½

The Unio shells furnished easily worked material for useful and ornamental objects, and it is somewhat strange that more of these were not found. Fig. 5, *a*, shows an implement made by pointing one end of a unio shell. An implement very similar to this is said[1] to have been used in smoothing and shaping pottery.

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[1] Notes on Canadian Pottery by F. W. Waugh: 13th Archaeological Report of the Minister of Education, Ontario.

x 172 321 In excavating the house site, Work 9, a disc-shaped shell gorget (Fig. 5, *c*), perforated in the center and incised around the rim with radiating lines, was found. A smaller piece of unio shell (Fig. 5, *e*), cut in the shape of a rectangle and polished, may have been used as an ornament. Only two shell beads were found. One was made from a Unio shell and was disc-shaped and about half an inch in diameter (Fig. *b*). The second was a pierced shell of the Oliva literata (Fig. *d*), This latter shell is an Atlantic seaboard variety, found south of Cape Hatteras. It was probably brought up the Mississippi in the course of trade, being commonly found in the mounds of the Ohio and Mississippi valleys.

x 172 COPPER:—Only two pieces of copper were found, one a bead about a half inch in length, and the other an irregular piece of sheet copper with a surface of less than a square inch.

x 172 321 412 BONE:—Bone implements were found in quantity, distributed through all the remains that were examined. The bone articles found may be grouped under two heads, utilitarian and ornamental. The first comprises hoes, edged implements, grainers, arrow-straighteners, scrapers, digging sticks, awls, needles and fish-hooks, besides other articles of uncertain use. The second group contains gorgets, beads, buckles, bracelets, and certain finely made bone objects, which may have had a ceremonial use.

Hoes, broken and entire, were often met with. For these the shoulder blade of the buffalo and elk was used, the spine being cut away and the lower edge of the blade trimmed. The socket end of the blade shows no signs of wear in any of the specimens. This may be because it was protected by the thongs which bound it to the handle.

Smaller implements, made from part of a buffalo horn, were found here and there. Most of these were polished by much use, the base of the horn being worn down to a cutting edge. Fig. 6 represents one which has acquired a high polish from use. One of these implements was found in the middle stage of manufacture; in it the horn is roughly trimmed, as with

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an axe, and part of the frontal bone of the skull is still attached to the base of the horn. These horn tools may have been used for scrapers, trowels, or for general purposes in the kitchen.

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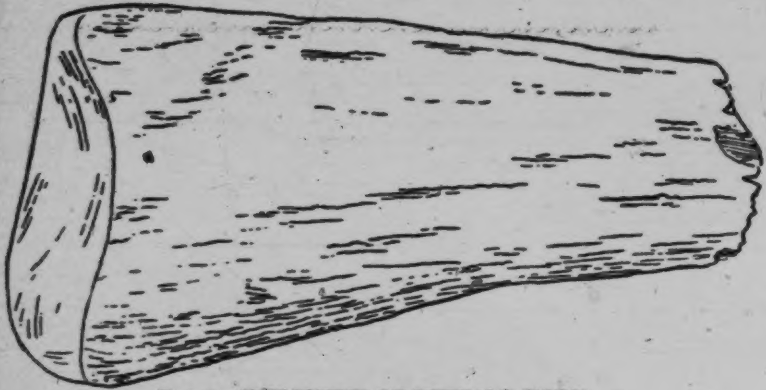

FIG. 6. IMPLEMENT OF BUFFALO HORN. ½

Several gouges or grainers were uncovered. They were made from the metapodial bones of the buffalo, and show good workmanship. Some of them (Fig. 7, *a* and *b*) have a smooth scraping edge, while others (Fig. 7, *c* and *d*) have a notched edge.

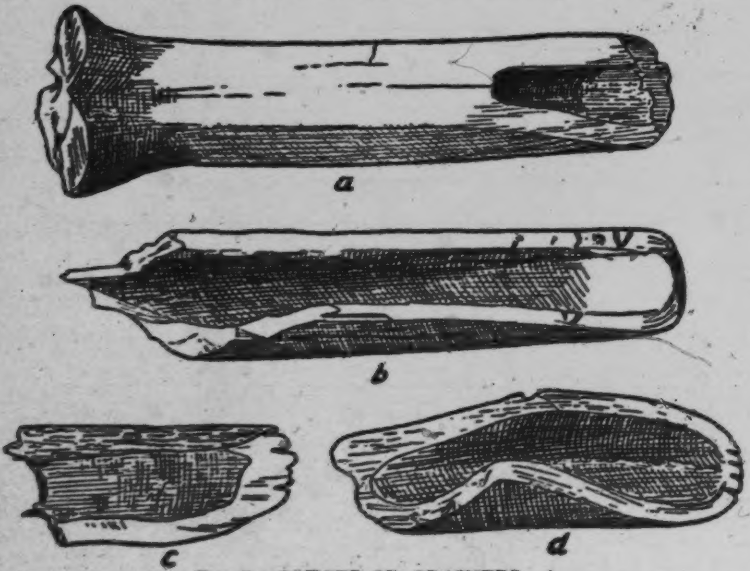

FIG. 7. GOUGES OR GRAINERS. ½

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The socket end of Fig. 7, *a*, the only perfect specimen, was probably covered with a pad, as the bone is rough, untrimmed, and shows no signs of wear. These gouge-like tools were probably used to scrape down skins in the process of graining.

So-called "arrow-straighteners" were found in considerable numbers in the mounds. These are of buffalo rib bones through which from one to three holes have been bored. The holes are sometimes almost round, but, more usually, are elongated along the axis of the bone. The bore is doubly funnel-shaped expanding toward both surfaces of the bone (Fig. 8). The use of these objects is problematical. It seems illogical to consider them wrenches to straighten arrowshafts, because in this operation only one hole could be used at a time, and additional holes would only weaken the instrument. Since the holes in each piece are all the same size, they could not have been intended for arrowshafts of different sizes. However, beyond the possible use as arrow-straighteners, no use has been suggested for them.

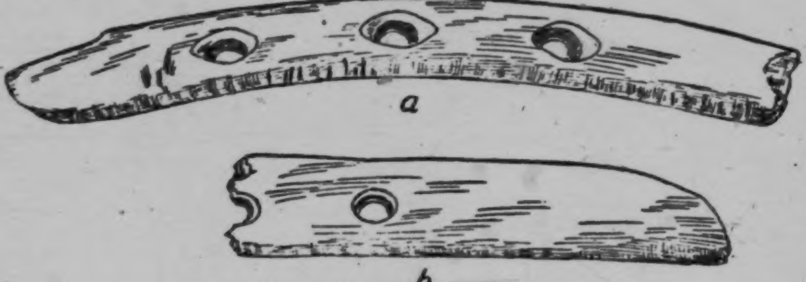

FIG. 8. ARROW-STRAIGHTENERS. ½

Certain crude bone tools, worn on one or more edges, may be grouped as scrapers. Most of these are made of broken bones of the buffalo, in particular the shoulder blades and the larger leg bones. They evidently had only a temporary use.

"Digging sticks," as they have been called for want of a better name, were found in great numbers. These are made of the rib bones of the buffalo and elk, which have been worn off round at one or both ends (Plate XXXV, fig. *a*).

By far the most common of worked bone objects found, fall under the head of awls. These were found in all the exca-

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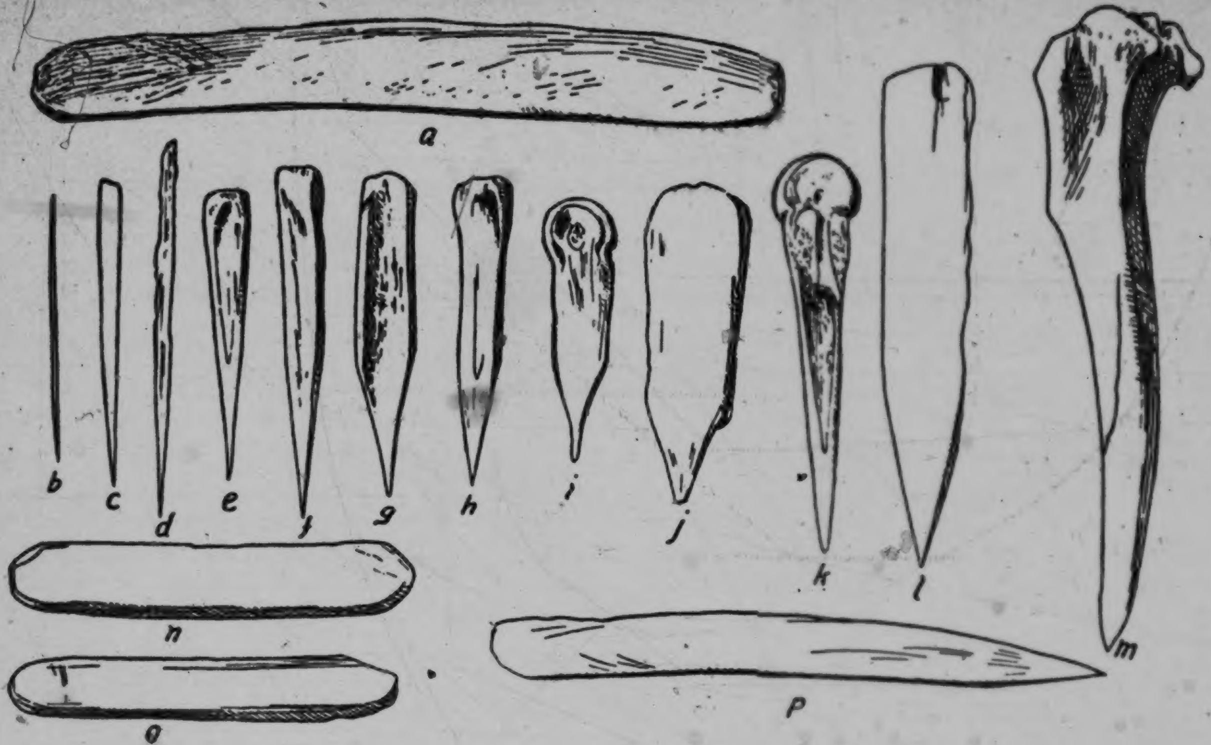
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SMALL BONE IMPLEMENTS.

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172 vations and in all the village sites visited. They have a wide
321 range in size and shape; a series of typical examples is given in
412 Plate xxxv. The needles are represented in this plate by Figs. *b*, *c*, and *d*. The first of these is round and very sharp, the other two are flat pieces of slivered bird bone. The larger awls are made in various shapes from various bones. Figs. *e*, *f*, and *h* are of bird bones. Figs. *g*, *j*, *l*, *n*, *o* and *p* are made from rib bones of buffalo and deer. Figs. *i* and *k* are made from the metapodial bones of the deer. Besides the awls which are more or less regular in shape, many were found which were very irregular. These were evidently intended for a temporary use and were made of anything that came to hand. Fig. *m* represents one of these cruder implements. The awls were ground to a point on whet stones of pumice stone.

A paint brush similar to those used of late years was found. It is triangular in shape and is made from the interior portion of a large bone.

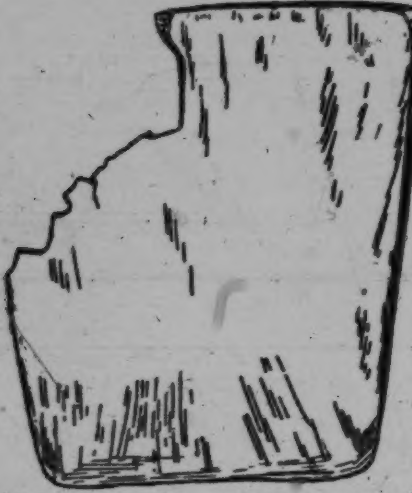

FIG. 9. OBJECT MADE FROM BUFFALO SHOULDER BLADE.

Certain objects of doubtful use are made of the shoulder blades of large animals. Fig. 9 shows such an implement. It is thin, highly polished and has one edge sharpened. They may have been used for knives and scrapers.

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Plate xxxvi, figs. *s* and *t*, shows two bone fish-hooks which were unearthed. Figs. *u* and *v*, on the same plate, figure two pieces of worked bone which may be fish-hooks in the process of manufacture.

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Bone was made into a great number of ornamental objects. Of these, beads were the more numerous in the remains. Bone beads were usually made from the leg and wing bones of birds. Plate xxxvi, figs. *l* to *o*, are bones from which beads have been wholly or partially cut off. Plate xxxvi, figs. *a* to *k*, are beads of different sizes, ranging from an inch and a half to a quarter of an inch in length, and of varying diameters.

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"Bracelets" made from the rib bones of small animals are shown in Plate xxxvi, figs. *w* to *z*. These are usually grooved on one side and rounded on the other, and perforated at one end. While calling these bracelets it is difficult to understand just how they were used as such and they may have been simply pendants.

Plate xxxvi, fig. *r*, represents a bone object, with notches on the four sides much like the rectangular stones previously described. This object is flat on one side and curved on the other and has a high polish.

Plate xxxvi, figs. *p* and *q*, are fragments of buffalo shoulder blades which have perforations, their use being uncertain.

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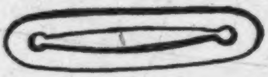

Fig. 10. A BONE BUCKLE. ½

Fig. 10 shows a curious piece of bone which probably served as a buckle. It is made of the outside portion of a buffalo rib.

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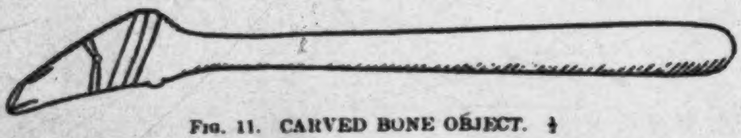

Fig. 11. CARVED BONE OBJECT. ½

The only piece of realistic art found is shown in Fig. 11. This bone is beautifully carved and polished. One end is incised to represent a crane's head, while the rest is rounded off to

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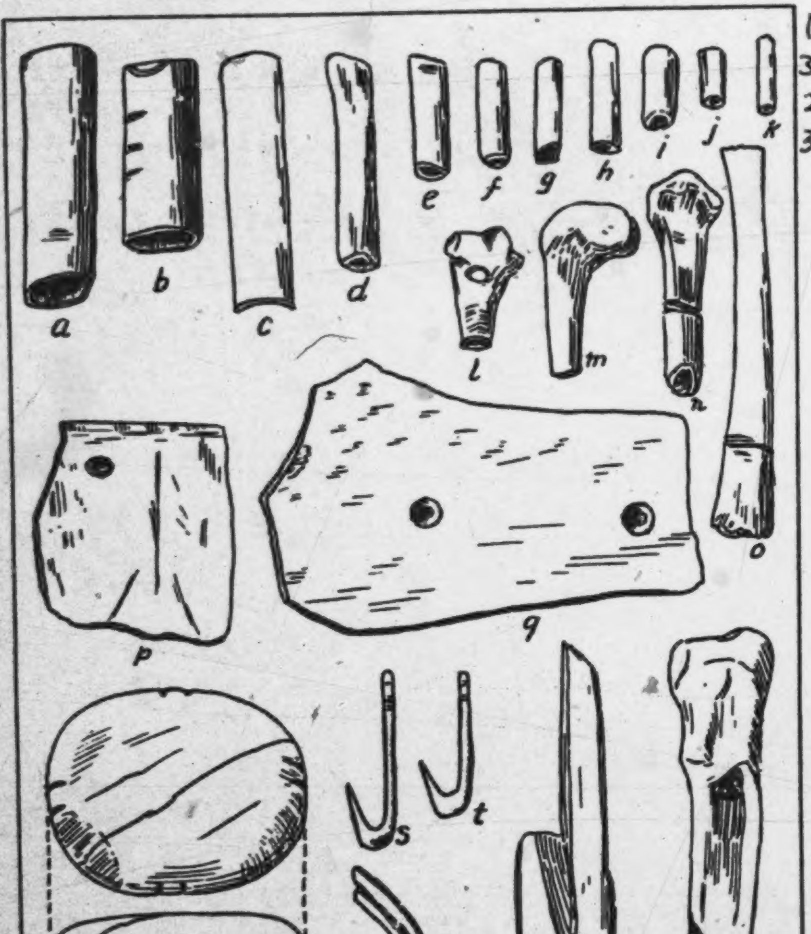
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SMALL BONE OBJECTS. ½

[Facing p. 172]

x 172 321 form the handle. The only sign of wear is on the beak of the bird's head. The use of this object is uncertain, but it is possible that it was part of the paraphernalia of a medicine man.

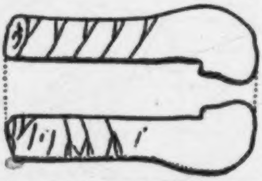

FIG. 12. BONE OBJECT WITH INCISED DECORATION. ½

Fig. 12 represents a portion of a well-made bone instrument which may have had a use similar to the above. This object is decorated with incised markings.

Several pieces of carved bones, representing various animal and bird heads, are reported to have been found in the various village sites, but no opportunity was given to inspect them.

x 172 323 171 POTTERY:—The pottery of the Mandans, judging by the fragments found at the different village sites, is one of the most interesting features of their culture. It is an excellent ware, thin, well-made, and with a characteristic development of form and ornament. The excellence of the pottery is the more remarkable when it is called to mind that the Mandans were at the northwestern limits of the pottery area. North of them, indeed, on the Mouse River, some crude pottery of uncertain origin is found. South of them, the Arikara and Omaha practised the ceramic art, being influenced in it by the pottery makers of the Mississippi valley. East of them, for several hundred miles, lived nomadic tribes who were apparently unacquainted with pottery, while the pottery of Wisconsin was too remote to exert an influence.

x 172 323 Mandan pottery is mentioned by almost all the early explorers, but no one gives an extended description of it, or a sufficiently detailed account of the method of manufacture. None of this pottery has been made for many years by the survivors of the tribe, but a knowledge of it can be gathered from a study of the fragments which have been preserved.

The pottery is, for the most part, a black ware, although sometimes it turned dull orange or red from firing. The un-

X 172 323

baked clay, small quantities of which were found in the mounds is bluish black in color, fine grained, and tough. It was tempered with coarse sand made by burning and pulverizing granite bowlders. Occasionally, the pots seem to have been painted with red pigment on the inside, but the use of a clay size is extremely doubtful.

The method employed in making pottery is not disclosed very fully by the fragments. Still something can be added to Maximilian's account given on page 117 of this paper.

Comparatively few of the pottery fragments show much of this evidence of the method of manufacture. The pots appear to have been smoothed and often slightly polished with a stone or other implement. The surface of some of the potsherds is scratched as if a handful of dry grass had been used to smooth them.

The vessels had a considerable range in size and shape; the largest had a capacity of four or five gallons, while toy pots, two inches in diameter, were sometimes made. Fig. 13 illustrates some of the more common shapes, as reconstructed from fragments. There seems to have been no attempt to maintain a series of types. No two pots are exactly alike in form or ornament, and all intermediate shapes between the ones given are found. This variation did not lead to unusual or grotesque forms. Fig. 13, *d*, shows about the extreme of individual development. The bottoms of the pots were rounded, the

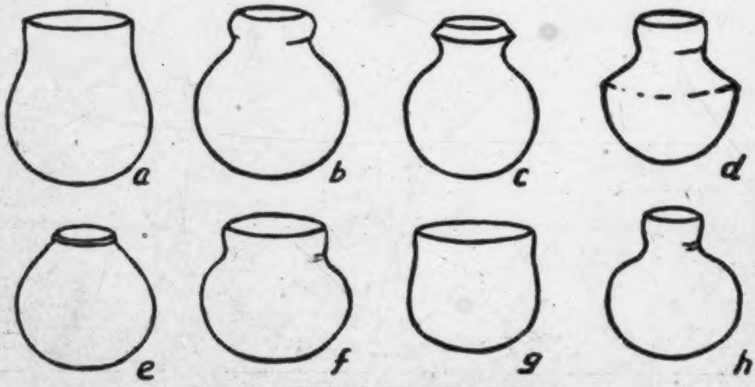

FIG. 13. TYPICAL SHAPES OF POTS.

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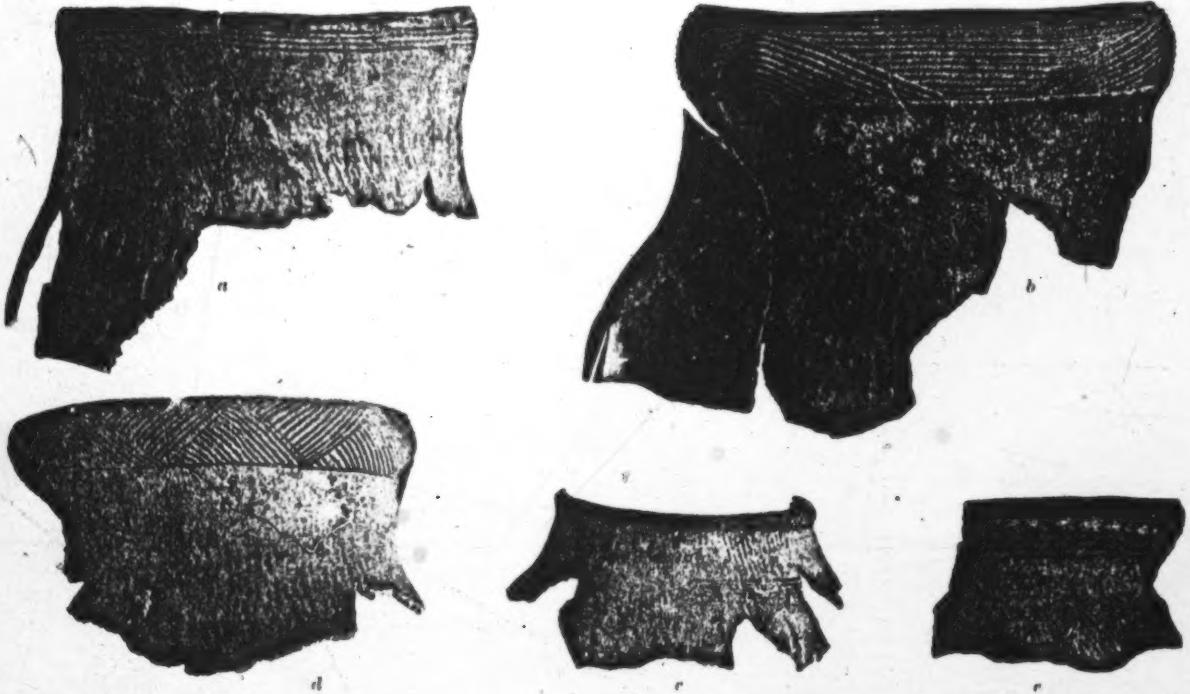
[P. 174 (A)]



LARGE FRAGMENTS OF MANDAN POTS.

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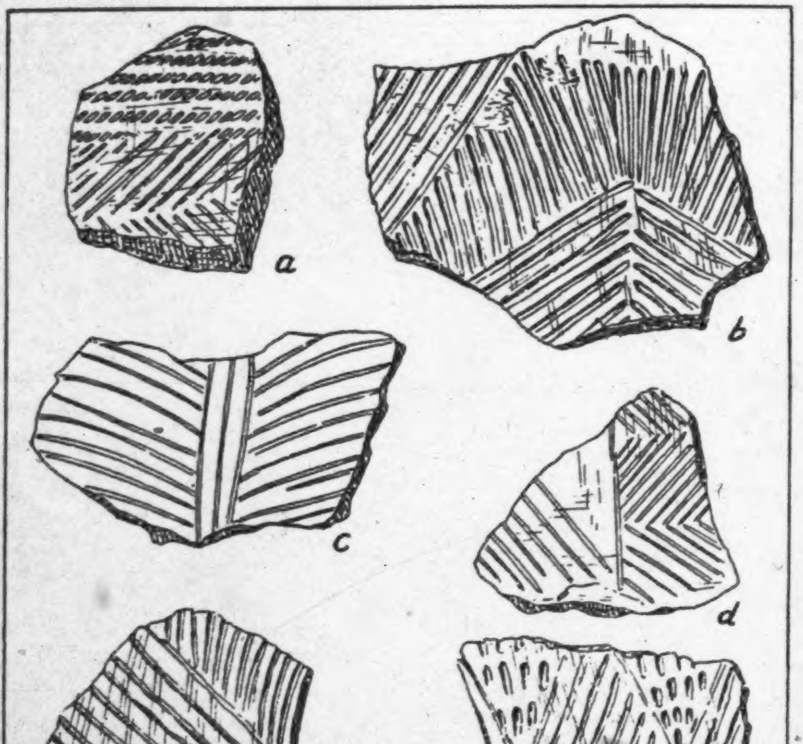

INCISED POTTERY FRAGMENTS.

[P. 174 (B)]

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mouths wide, and the short neck more or less constricted. The profile of the rim is characterized by a reverse curve. Often these profiles have very fine lines and present much diversity.

Fig. 13, *a*, shows the most common and crudest form of pots, such as were used for the coarsest work. Sometimes these rude pots were entirely undecorated, but usually they had three or four encirling cord marks around the rims or shoulders. Fig. 13, *b*, *c*, *d*, and *f*, present more finely shaped pots which show the short neck and the reverse curve profile. In Fig. 13, *h*, the form approaches that of a bottle. Fig. 13, *e*, shows a form of pot in which the neck is absent. The mouth is smaller than usual, in comparison with the largest diameter of the pot. Fig. 13, *g*, represents the bowl form, which was rather common. No pottery of the platter form was found, although it may have existed.

The ornamentation of Mandan pottery is interesting and characteristic. It may be roughly divided under two heads incised, and cord-marked. Incised design is neither so uniformly nor so characteristically developed as cord-mark design. In few cases can a unit of incised design be extracted. Cord-mark design is applied to the rim and to the neck of the pot, while incised design is applied almost entirely to the shoulder. For this reason incised design is usually found in combination with cord marking.

In incised design the incising consists of long and short lines such as could be made by a shell moulding tool like that shown in Fig. 5, *a*, or by some other pointed implement. These lines are often very evenly made, and seem to be comb markings. But examination shows that the lines are not exactly parallel as they would be if made by a toothed instrument (Plate xxxviii, fig. *h*). The most common pattern of incised design is that in which the lines are arranged to form a zigzag around the shoulder of the pot. A fine example of this is seen in Fig. 16, and a freer use of the same pattern is shown in Plate xxxvii, fig. *e*. Often parallel lines are drawn, as a sort of cross-hatching, in irregular areas (Plate xxxviii, figs. *b*, *g*, *h*). In the first of these, the suggestion of an elaborate design is destroyed by the evidence of other fragments from the same

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172 pot. The herring-bone pattern is found in several fragments
323 (Plate xxxviii, figs. *a*, *d*, and in text, Fig. 14). The pattern shown in Plate xxxviii, fig. *c*, is one in which the circumference of the pot was divided into several sections by a series of vertical lines, and the areas thus formed were decorated by curved cross lines. Perhaps the most regular of incised line patterns is that shown in Plate xxxviii, fig. *f*. Here a band around the shoulder of the pot is divided into triangular areas by a zigzag line, then all the triangles pointing down are filled with short dashes, while the alternate ones, pointing up, are marked with oblique lines. Plate xxxviii, fig. *g*, shows a less orderly form of the triangular area decorated with short lines. Figs. 14 and 15 show undecorated areas in the midst of decorated ones. In Fig. 15 the middle zone of the pot seems to have been divided into rectangles which were further divided by diagonals. The upper and lower quarters, thus made, were decorated by diagonal lines, the side areas remaining untouched. From the rest of the design, given on the fragment, it is evident that this idea was not carried out in an orderly fashion. Fig. 16 shows a fragment having a row of indentations round the body of the vessel.

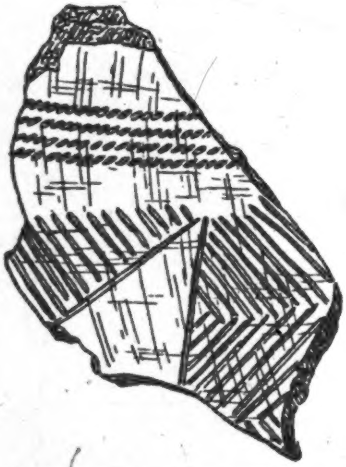

FIG. 14. INCISED POTTERY FRAGMENT SHOWING HERRING-BONE PATTERN.

3: Will and Spinden E-5 (1905) 1906

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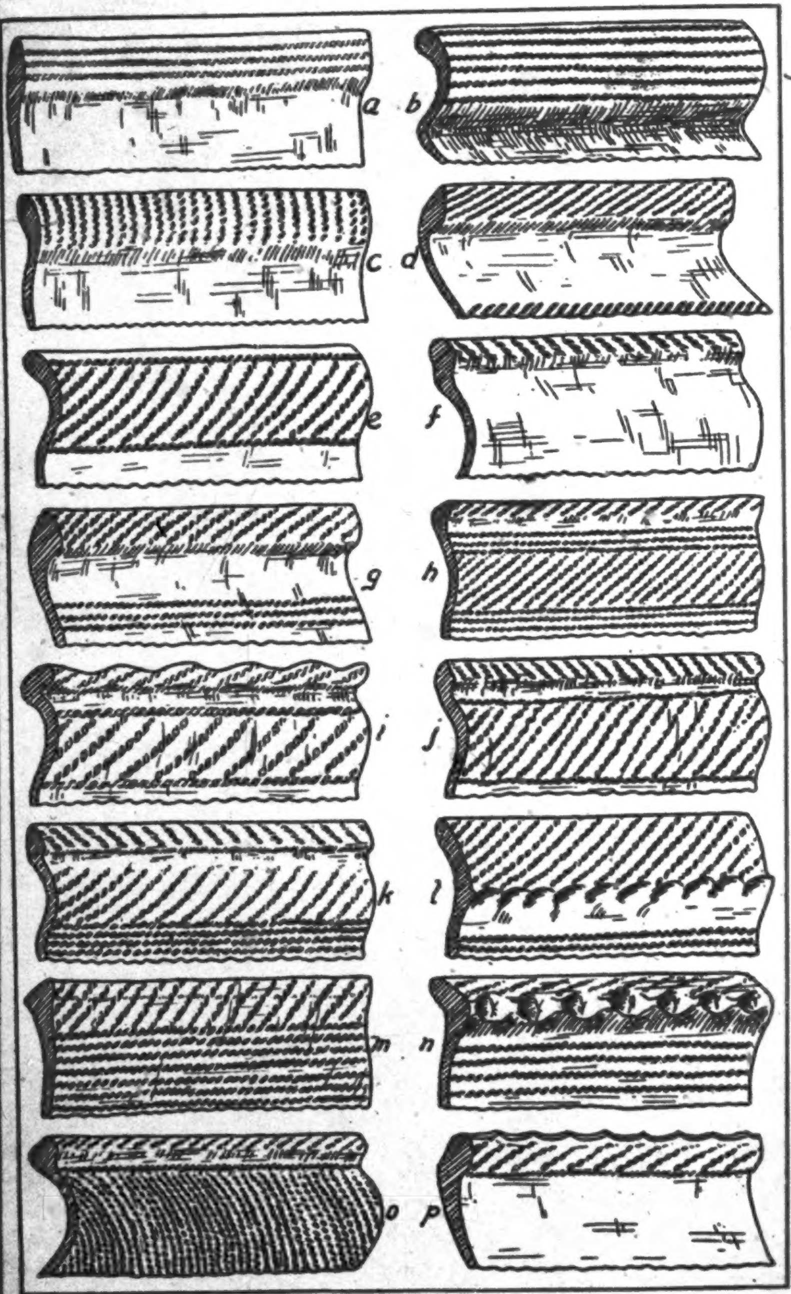
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POTTERY ORNAMENTATION.

[P. 176 (A)]

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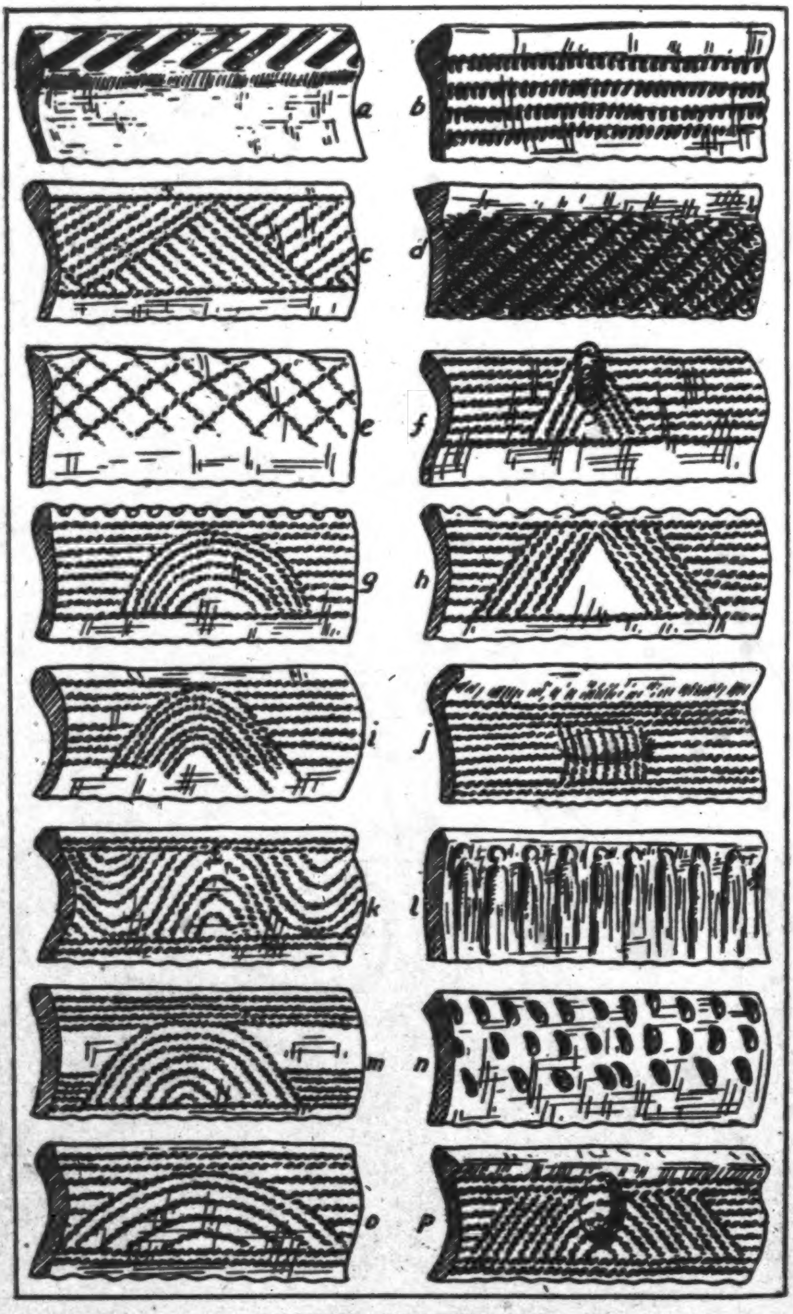
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POTTERY ORNAMENTATION.

[P. 176 (B)]

3: Will and Spinden E-5 (1905) 1906
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Thus it is seen, that while there is considerable variety in incised design, it is not developed in an orderly manner. It is put on freely and at haphazard.

Cord-mark design, on the other hand, shows much neatness, order and precision. It also shows amazing variety within certain narrow limits. Rectilinear designs preponderate and curvilinear forms occur only in conjunction with them. Sinuous lines were not found, except in one pattern (Plate XL, fig. *k*) where the semicircular arcs reverse.

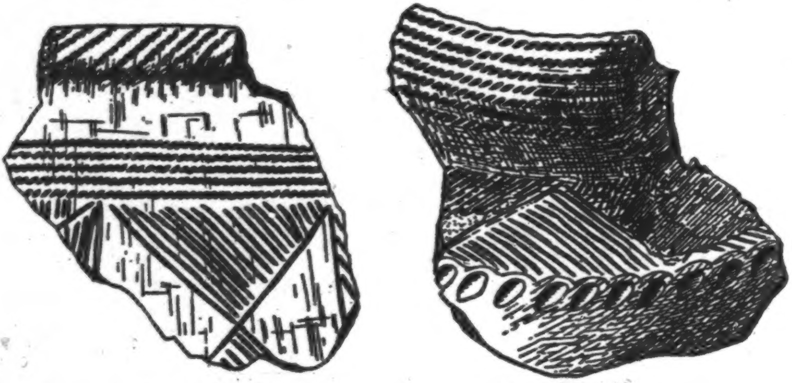

Fig. 15. Fig. 16.

POTTERY FRAGMENTS SHOWING THE COMBINATION OF CORD MARKED AND INCISED DESIGN.

Plates XXXIX and XL show the principal variations of cord-marked patterns. The cord-marked designs extend in bands around the rim of the pot. The bands are made up either of simple encircling lines (Plate XXXIX, figs. *a* and *b*) or of short, diagonal lines, often bounded by the encircling lines. Some of these patterns show much neatness in covering up the ends of the diagonal lines by the horizontal lines, (Plate XXXIX, figs. *e*, *h*, *i*, etc.) All the combinations of direction of the diagonal lines are shown in the different potsherds. No two patterns are found to be exactly alike, the number of the cord marks varying greatly, as also the form of the profile to which the design is fitted. Some of the designs are very neatly put on, while others are carelessly done. The size of the cord marks vary,—some of the string was evidently very fine, while some was quite coarse.

3:Will and Spinden E-5 (1905) 1906
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323 The designs in which triangles, rectangles and arcs are inserted are so arranged that these insertions come at regular points on the circumference. Usually there are four of these points (Plate XL, figs. *f*, *g*, *h*, *i*, *j*, *m*, *o*, *p*).

Besides the cord marks, the ornamentation is often enhanced by scalloping the rim as in Plate XXXIX, fig. *p*, or by rendering it wavy as in Plate XXXIX, fig. *i* and Plate XL, figs. *e*, *g*, *h*. Sometimes a sharp angle is decorated with indentations, as in Plate XXXIX, fig. *n*. Sometimes the underside of a band of cord markings is bounded by a series of finger impressions, as in Plate XXXIX, fig. *l*. Knobs are frequently used in the center of the triangular or arc-like insertions, as in Plate XL, figs. *f*, *j*, *p*.

In Plate XL, fig. *a*, is a design made by impressing a small stem into the soft clay in the same manner as the cord impressions were made. Plate XL, fig. *b*, shows a design apparently made by impressing a small stick wound with a skin thong. It may, however, have been made by a string of shell beads. Plate XL, fig. *l*, shows a rough pattern made by a series of small holes, directly under which is an imprint, perhaps that of the paddle stick used in toughening the clay. Plate XL, fig. *n*, is a crude ornamentation made by the prints of the the thumb nail.

Only one example of textile impression is found, that shown in Plate XL, fig. *d*. The piece of pottery which shows this was picked up near the town of Mandan. The fabric from the imprint, seems to have been made of cords which are woven around a series of heavy cords or withes.

As before mentioned, an oval stone, which was evidently pecked into shape, was found in one of the house sites. This was probably one of the kind on which the bottoms were moulded. The pot was apparently beaten with paddle sticks, of various kinds, to toughen the clay. Plate XLI reproduces several potsherds which show markings. Sometimes the fragments show crisscross markings, as if a paddle covered with matting were used (figs. *f*, *g*, *i*, *m*, *n* and *o*). Sometimes fine check markings (figs. *c*, *d* and *e*) suggest that an incised paddle was used. More frequently, however, the markings are such as to suggest the use of a small spatulate stick (figs. *h*, *j*, *k*, *l*, *p* and *q*). The

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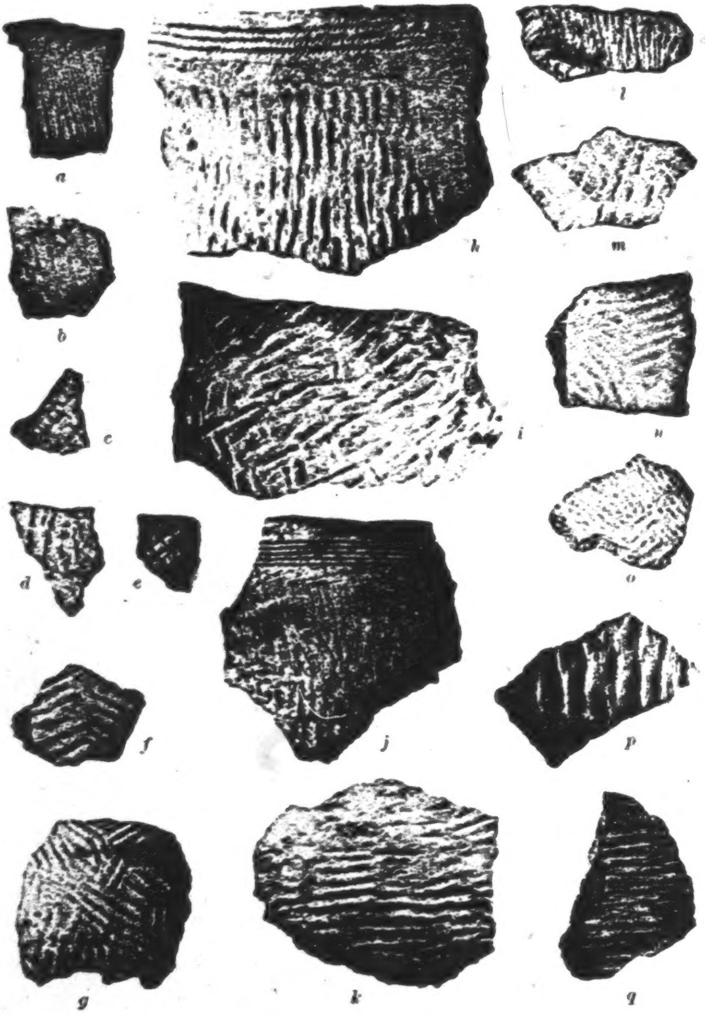
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POTSHERDS SHOWING PADDLE AND OTHER MARKINGS.

HELIOTYPE CO., BOSTON.

[P. 178 (A)]

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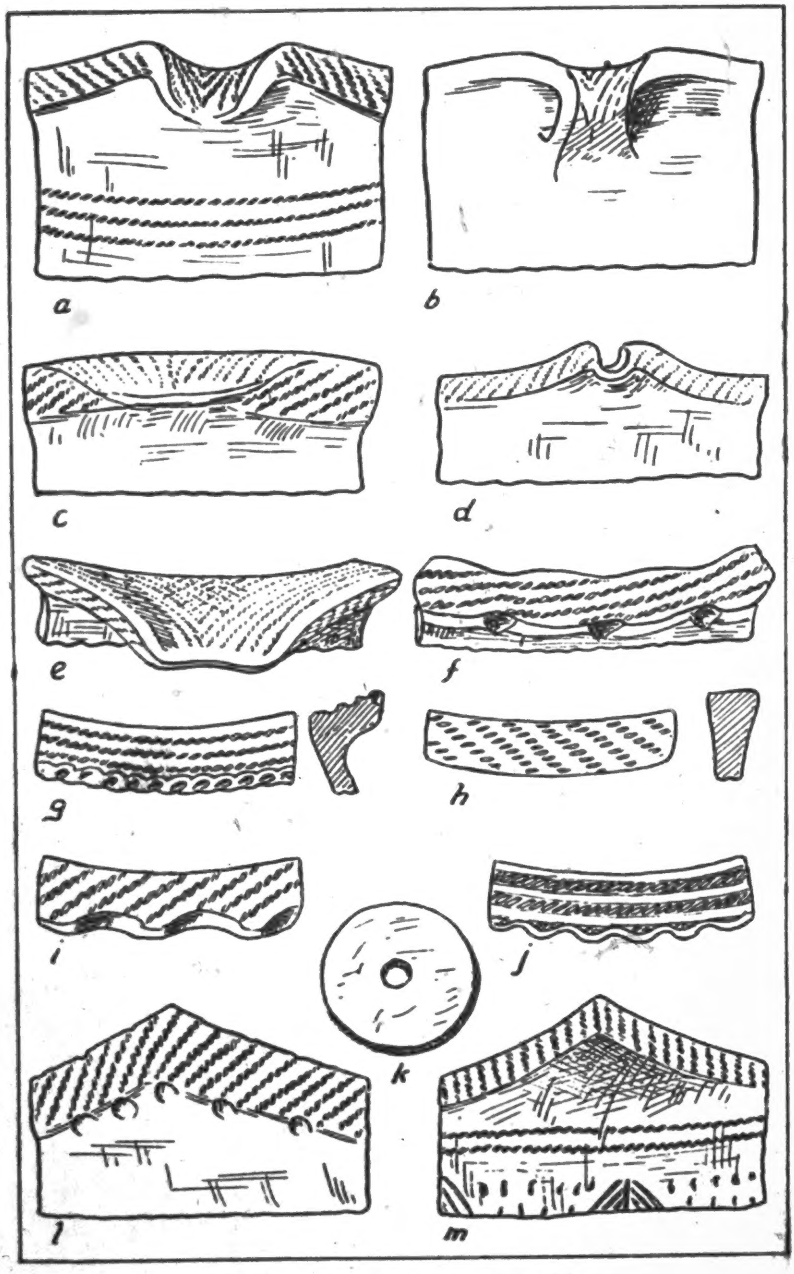
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POTTERY RIMS AND POTTERY DISC.

[P. 178 (B)]

x 172 323 markings, when roughly parallel, are either horizontal or vertical. Usually the markings around the necks of the pots are vertical.

Sometimes the upper surface of the rim was impressed with cords or otherwise ornamented. Plate XLII, figs. *f* to *j*, gives representations of the different modes. Another kind of ornamentation, which was only slightly employed, was to form the edge of the pot into a series of broad serrations or crescent-shaped depressions. Apparently there were four or more cusps to the circumference. Examples of the cusps are shown in Plate XLII, figs. *l* and *m*. In this feature the Mandan pottery closely resembles the pottery around the Great Lakes. [171]

Many of the Mandan pots were provided with ears, lugs or spouts, the last evidently used to assist in pouring (Plate XLII, figs. *a* and *e*). A lug is shown in Plate XLII, fig. *b*. Sometimes the ear or lug may have been used only as a detail of ornamentation. Plate XLII, fig. *c*, gives a case in which the presence of the lug is disclosed by the cord marks. Plate XLII, fig. *d*, shows a peculiar spout-like opening which seems too small to have served any useful purpose.

Two or three fragments of pottery showing a perforation were found. The perforation was probably to enable some break to be mended.

No pipes made of pottery were found. The only other article of pottery, besides the potsherds, was the perforated disc shown in Plate XLII, fig. *k*. This object is about an inch in diameter.

x 172 241 VEGETABLE REMAINS: — The materials of vegetable origin in the excavations were nearly all charred and consequently many points about them cannot be considered. However, there are a number of interesting details which coincide as far as they go with historical information concerning the Mandan agriculture. The actual remains of vegetables found were those of corn, beans, squash or pumpkins. The seeds of sunflowers and small black seeds of a sort of pig-weed (*Chenopodium sp.*) were also found.

The corn remains were mostly of cobs, from which the grain had been cut off, leaving only an occasional kernel. One or two pieces of ears with the kernels and part of the husk intact

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were found. The cobs were all charred and occurred in layers in the mounds and at times in the caches, being often mixed with the remains of burnt sunflower and other seeds. The cobs were seldom over six inches long and many were smaller. They seemed to be of two types, a long and thin cob, and a shorter, rather thick cob. The kernels themselves were also of two types; a small kernel, rather long, and a considerably larger one, almost round. All of the cobs showed regular rows, with the exception of the nubbins, which are very irregular in nearly every variety of corn. The number of rows on an ear varied somewhat, but no ear was found with any other numbers than eight, ten or twelve. The slim cobs usually had ten rows with occasionally eight. The thicker cobs always had twelve rows. The kernels were in too imperfect a state to permit of discovering whether they were flint, dent, or sweet corn. The cobs with the smaller kernels had very much the appearance of pop-corn. The ears seemed to be of fairly uniform length, and in this respect, as well as in their regularity of rows, differed noticeably from the later "Ree" or "Squaw" corn of the Indians in this region.

Beans were of rare occurrence in the excavation, usually being found mixed with the other burnt vegetables and often split in halves. No sign of the pods was found. The beans were very obviously of two sorts. The first was a rather long bean, averaging about one half an inch in length, and shaped much like the kidney bean. The second was a small bean, usually about one quarter of an inch in length and almost round, resembling very much the navy bean.

Charred sunflower seed and portions of the heads were found thickly in all the burnt layers. The seeds of these also can be divided into at least two sorts. The most common appeared to be a long seed, averaging from one half to five eighths of an inch in length, appearing much like that of the ordinary sunflower of civilized cultivation. The other type of seed was a shorter and thicker one, usually little over one quarter of an inch in length. The charred pieces of the heads were much broken up.

The squash or pumpkin seeds were the only ones not in a charred condition, and these usually occurred in small pockets

probably where a handful had been thrown. One of the stem 172x
ends of a squash was found and showed by its shape that the 241
vegetable had not been of the flat, summer squash variety. The seeds were of two or perhaps three sorts. First there was a long, narrow seed resembling some of the large gourd seeds. The other type was much thicker through, and apparently represented two varieties, judging from the difference in size. One of these was as long as the first mentioned, but as has been said, was thicker. The second, of the same shape, averaged very little over half as large.

The small black seeds above referred to were found intermixed with the other vegetable remains in the layers. They had a hard shiny shell and thus even when not charred had lasted well. The charred ones, however, were in much the best state. Seeds of this genus of plants are eaten in South America, and are decidedly valuable for food, and, although there is no mention of their use as food by the Mandans, they may have been so used.

In addition to the vegetables themselves there were other 172x
finds of vegetable origin. Among these were objects of bark, 285
wood and grass. The most notable of the bark finds were two large pieces of birch bark, found together in one of the pits. These have perforations where they had been sewed and probably formed a part of a basket or box. The birch is not found within one hundred miles or more of this region, and the bark receptacle must have come through trade with some more eastern nation. Other finds were three or four flat disc-like coils, about four to five inches in diameter, with a hole in the center. These were made of the very thin inner bark, probably of the cottonwood, in the shape of a mat and bound around the outside with another strand of the same bark. It is very likely that these are identical with the stands upon which the pots were set, as described by Henry. In one place a small quantity of bark flakes was found, and it is barely possible that these may be remnants of smoking materials of *Cornus*.

The only article made of grass was a small charred piece of 172x
cord, although burnt grass occurred frequently in the black 283
layers, and decayed grass or hay was found as a lining in the

x 172 283 pits. The cord mentioned consisted of three strands, each of six or seven prairie grass stems; these three strands were not braided, but twisted.

x 172 313 The remains of posts and sticks were often in such a condition that the wood could be identified. One of the largest posts found in the house site was of ash, but most of the large ones were clearly cut out of cottonwood. For the smaller posts, however, the diamond willow seems to have been most frequently used, and it is unquestionably the best wood. A few specimens of worked wood were found but none of great importance. There was a post, hewed square; a number of pieces of planks or slabs, fairly well cut; remnants of willow thatch from the roof; and a small piece of wood which had been whittled down with a blade of some sort.

The ashes showed the use of at least two sorts of fire wood, one giving a white ash and the other a red one. The red was probably diamond willow in most cases, as that is the only common wood in the region which leaves a reddish residue.

x 172 Animal Bones:—Animal bones were numerous in all parts of the village site, not only in the form of implements, which have already been discussed, but also as refuse. Many of the bones were broken up into small fragments, but a number of whole ones were discovered and most of them have been identified. There were fish, bird and mammal bones belonging for the most part to the following species: Deer (*Cariacus virginianus*), Buffalo (*Bison americanus*), Elk (*Cervus canadensis*), Antelope (*Antilocapra americana*), Gray Wolf (*Canis lupus*), Coyote (*Canis latrans*), Raccoon (*Procyon lotor*), owl (*Strigidae sp.*), and Bald Eagle (*Haliaëtus leucocephalus*), besides bones of smaller birds, some that seemed to be from a crane but could not be accurately identified; bones of mice and gophers; some few fish bones, and quite a number of unio and small [231] snail shells. It is a significant fact that no remains whatever of either horse or dog skeletons were found, thus apparently showing that the horse had not yet got to the Mandans when they lived on the Heart, and also corroborating Henry's statement that the Mandans at first had no dogs.

3:Will and Spinden E-5 (1905) 1906
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The bison bones predominated in the finds, parts of almost every portion of the skeleton being found. One whole skull was uncovered, besides a number of horns and a considerable quantity of teeth. Portions of the vertebral column were also taken out, including the long vertebrae of the hump; ribs, hoofs, and leg bones, the latter much broken, were present, as well as a number of the large scapulae which were used in making the hoes. 172 x

Of the deer not many bones were identified. There were, however, a number of antler tips, as well as teeth and broken portions of the jaw.

Two antelope skulls were found, one that of an adult, and the other that of a very young animal with horns just sprouting. Antelope teeth were also found as well as some portions of the smaller leg bones, a piece of the sternum, and one or two scapulae.

A number of the large front teeth of the elk or wapiti were found, but none of the valuable "tushes." Part of an elk horn as well as several tips came to light in the excavation.

Wolf remains occurred frequently, four whole skulls being found, as well as a number of leg and foot bones, and several of the last phalanges to which the claws were attached. Three of these skulls were broken in on one side, as if the animal had been knocked on the head with a club. Two cayote skulls were also found, as well as some of the leg bones. From one of these skulls the nose had been smoothly cut off.

Among the smaller animals, the teeth and jaws of a raccoon, gopher jaws, and several skulls of mice were found.

A large number of bird bones were not identified but some of the wing bones of a species of owl as well as the leg bones from a bald headed eagle were found. The bill of some sort of crane also came to light.

The fish bones were so fragmentary that the species were not accurately identified, but it is probable that most of them were from cat-fish.

Burial and Human Remains:—The human remains discovered during the excavation were few and unsatisfactory. Only one skull was found and but two adult skeletons were 172 x 764 x 172 764 secured, one in poor condition. Parts of a child's skeleton were found and broken bits of skulls occurred occasionally in mounds or pits. The two skeletons, besides being apparently of two different types, exemplified two very different methods of burial.

The first skeleton, which was complete, was found under the largest mound at the bottom of a small circular pit. The skeleton was in a flexed position, hands about the neck, and knees drawn up nearly to the chin. It lay on the right side and faced towards the southwest. No ornaments of any sort were found about the remains, but a bone hoe lay above and another just below them; a brown layer, below, possibly marked the remains of some sort of wrapping. This burial shows nothing whatever in common with that of the Mandans so far as accounts go; and it resembles that of the Arikara only in that it was placed underground, since the Arikara lined the grave with stone and buried many things of value with the dead, often placing more than one body in a grave which was partitioned into compartments.

The second burial differed in every detail from the first, but seemed to correspond to the Mandan custom. The bones had been collected into a bundle and buried without ceremony, and a child's remains in an irregular mass were found associated with the larger bundle of bones. The skull of the adult was missing. According to Catlin after the dead body had dried on the scaffold it was taken down, the head was kept in one of the shrines and the bones were buried in a bundle. The body of a child was tied to the scaffold of an adult, and it is probable that the bones were buried along with those of the older person. Hence this burial may be confidently identified as Mandan. A number of broken fragments of children's skulls were found among the other refuse of the mounds and pits, but none of the other bones of the skeleton were ever present, which corroborates Catlin's story of the separation of the skulls from the remainder of the body.

x 172 141 As has been said, the two skeletons found seemed to be of different types. The first one was that of a man about fifty years of age, whose height was 1594 cm. The skeleton was

3: Will and Spinden E-5 (1905) 1906

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nearly perfect and showed no deformities or injuries. Measurements of the skeleton itself will be considered in connection with those of the second one. A table of skull measurements is given below, and, for comparison, measurements of three Mandan skulls given in the Army Medical Museum Report[1] are appended.

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SKULL OF SKELETON 1.		SKULLS FROM ARMY MEDICAL MUSEUM		
Cranial index	71.4	79.4	77.3	74.7
Height-length index	70.8	73.1	70.3	71.
Height-breadth index	90.9	88.4	91.9	97.8
Facial index (total)	89.2			
Facial index (upper)	58.4			
Gnathic index	91.5			
Orbital "	89.4			
Nasal "	47.1			
Palatal "	117.6			
Capacity	1265.	1450.	1370.	1440.

Figures on nine skulls given by Dr. Boas[2] averaged 80.6 for the cephalic index. On measurements of 156 persons of both the Mandan and Hidatsa tribes, an average cephalic index of 79.6 was obtained by him, but from the seriation of the measurements the tendency was marked towards longer heads, six individuals having an index of 70, six more of 71.

The second skeleton was that of a man about forty years old. The height was much greater than that of the first, being about 1738 cm. Some of the bones in this skeleton were broken and a few of the smaller ones were missing. The bones showed signs of severe rheumatic trouble.

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[1] G. A. Otis: Check List of the U. S. Army Medical Museum, p. 73, 1876.

[2] Zeitschrift für Ethnology, vol. 27, p. 397.

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The more important figures for each skeleton are:—

FEMUR.

	No. 1.		No. 2.	
	RIGHT	LEFT	RIGHT	LEFT
Length	433	430	471	—
Oblique length	429	425	470	—
Diameter of head	46	46	49	48
Platymeric index	71.4	63.8	65.7	68.5
Transverse diameter of condyles	83	83	85	—
Angle of neck and shaft	118	118	122	122
Anterior posterior diameter at mid-shaft	27	26	29	29
Transverse diameter at mid-shaft	27	27	28	28

TIBIA.

	RIGHT	LEFT	RIGHT	LEFT
Length	361	362	385	382
Diameter of condyles	76	76	80	82
Anterior posterior diameter at mid-shaft	31	30	39	38
Transverse diameter at mid-shaft	19	20	22	20
Index	62.9	66.6	56.4	52.8

HUMERUS.

Length	320	317	347	337
Diameter of head	46	46	50	50
Anterior posterior diameter at deltoid eminence	17	17	21	16
Transverse at same	21	21	21	21
Angle of neck and shaft	125	125	120	125
Index at deltoid eminence	80.9	—	100.	—
Torsion of humerus	133	122	115	121

SCAPULA.

Length	158	162	165	—
Breadth	108	105	110	—
Length at base of spine	124	127	129	—
Scapular index	81.2	82.6	85.2	—
Length of radius	245	244	271	—
Length of clavicle	150	155	157	—

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PELVIS.

Breadth	301	292	172 X.
Height	217	216	
Breadth between ischia tubera	164	143	141
Between ischia spines	110	79	
Sub-pubic angle	77.5	43	
Diameter of true pelvis	154	125	
Conjugate diameter	117	100	
Pelvic index	75.9	80	
Oblique diameter	138	118	
Depth of symphysis	42	48	
Depth of pelvic cavity	102	109	

Although no comparative figures were available for anything except the skulls of the Mandans, all of the other Siouan tribes, whose measurements are given by Dr. Boas, show prevailingly a tall stature. On the other hand, the Arikara and Pawnee average much shorter. This marks the only well defined distinction which can here be made between the Arikara and the Mandans, as the cranial index of the former also shows a long-headed type, though probably not quite as long as the Mandan. An average of 174 Arikara individuals[1] gave a cephalic index of 81.5. Still another series of measurements gave 82.[2] The Army Medical Museum Report[3] gives on one Arikara skull, 75.8, and on four others the average was 82. None of the Arikara skulls run as low as 71 and 70, as did some of the Mandan.

Probably the second skeleton can safely be called Mandan. The first one, however, seems to be hard to place, for the method of burial was distinctly not Mandan, and the skeleton was of short stature.

[1] Boas: Op. cit., p. [illegible].

[2] Ibid., p. 297.

[3] G. A. Otis: Check List of the U. S. Army Medical Museum, p. 72.

SECTION III.

LANGUAGE.

197 The language of the Mandans is unquestionably of the Siouan stock, but does not appear to show very much closer affiliation with one than with another branch of that stock. The Hidatsa is perhaps nearest to the Mandan but even that differs materially both in vocabulary and grammatical construction. It has been said that the Winnebago resembles most closely the Mandan, but from a careful comparison with vocabularies containing over one hundred equivalents from some six or seven Siouan dialects it appears that this resemblance is not as great as that between the Winnebago and the Iowa.

197 191 The Mandans were excellent linguists and we are told by early travellers that they were accustomed to learn the languages of nearly all their neighbors, while very few of the other tribes ever learned Mandan. Such a condition was apt to bring about considerable change in the language, and very likely it did so. Maximilian was told by the old men that in their youth the Mandan and Hidatsa resembled each other much less than they did in 1834. The songs of the Okeepa and society dances were in an older language which no one but the medicine men and those whom they taught understood. And lastly at this time the Mandans in the two villages spoke different dialects. The ones on the south side of the river, who thus had more intercourse with the Hidatsa, spoke a dialect resembling that language more closely than did the dialect in the northern village. Words in the south village became shortened to resemble the more abrupt speech of the Hidatsa, and sound changes, notably that of *d* for *n*, crept in from the latter.

114 Information upon the Mandan language is exceedingly scarce and no very accurate or full grammatical sketch exists. Small vocabularies are found in many places, but these have

never before been brought together. Those given by Catlin, 114 Maximilian, Hayden, Morgan and Schoolcraft have been carefully gone over and a composite vocabulary (see following pages) of all the words has been compiled. Several other lists of words were examined and were found to contain only words taken from the above authorities. James Kipp who lived in the Mandan villages for a large part of his life furnished every one of the above mentioned persons with their material, and consequently all vocabularies of the Mandan language come through him.

Maximilian and Hayden both left short grammatical sketches, very incomplete, which have, nevertheless, been of considerable assistance in the preparation of this paper.

Mandan texts have been most difficult to obtain, there being only two small publications printed in that language. One is a translation of the Ten Commandments by the Rev. Charles L. Hall.[1] The other is a hymn book containing also the Ten Commandments and the Lord's Prayer, prepared by Mr. R. D. Hall, which has been of the greatest assistance in further grammatical study.

PHONETICS: — The question of phonetics in the Mandan is 194 very uncertain. There is no full discussion of the subject and in taking down vocabularies little care seems to have been used to obtain the exact sound, each authority spelling the same word a little differently. Consequently an enumeration of the Mandan sounds can only be an approximation.

The vowels were *i*, *e*, *a*, *ŏ*, *o*, *u*, and perhaps *ü*. The *a* seems to be as *a* in "father." The *e* is used as *e* in "met" or as *ä* in German. No distinction can be made between the two as both are used in different vocabularies in the same word.

The *i* is long as in "machine;" *o* is long as in "note;" *ŏ* is short as in "not." A clear distinction between the two *o*'s cannot always be made however. The *u* is long as *oo* in "boot" or as the German *u* in "buch." The German *ü* occurs occasionally in Maximilian but in no other vocabularies.

The vowels seem often to be nasalized (koha^{n}te=corn) as in Dakota, though careless transcription has failed to note this.

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[1] See Pilling: Bibliography of the Siouan Languages; Washington 1887, p. 31.

194 The following consonants appear in Mandan:

	SURD.	SONANT.	SPIRANT.	NASAL
Velar	*q*	–	–	–
Gutteral	*k*	*g*	*x*	–
Alveolar	–	–	*tc*,	*n*
Dental	*t*	*d*, *r*	–	–
Interdental	–	*θ*	–	–
Labial	*p*	*b*	–	*m*
Lateral	*L*	–	–	–
Sibilant	–	–	*c*, *s*	–

Also *h* and *w*.

The *x* is a gutteral like *ch* in German "Bach."

The *w* is perhaps a bilabial, as we find the same word spelled *tewe* and *teve* in different vocabularies.

The *d* and *r* seem to be interchangeable. The *tc* occurs very seldom. Only one case of the lateral *L* is known and Maximilian alone gives it in the case of the word *tasxaL*=what.

The *c* is of very frequent occurrence, and the *k* and *x* sounds are also prominent. The *g* is rarely used and *j*, *l*, *f*, *y*, and *z*, so far as the vocabularies show, do not appear at all. The *m* and *w* sounds often seem to be interchanged. This recalls the Hidatsa where there are two series of three or four interchangeable sounds. Consonants are rarely doubled and are generally separated by vowels, making the language rather smooth.

Of accentuation little can be said as vocabularies either fail to give any accent or differ among themselves. It is probable, however, that the radical syllable usually keeps the main accent.

195 EUPHONIC CHANGES: — Euphonic changes are a prominent feature in many of the Siouan languages, and there is evidence of their occurrence in Mandan, although not with such frequency as in Dakota. In the suffixing of the tense sign certain changes of this sort occur and will be mentioned later. The negative also seems to carry with it alterations for the sake of euphony.

193 THE ROOT:— The root in Mandan seems to be usually monosyllabic and often of but two sounds, a consonant and a

vowel as *he*, *hu*. But triliteral roots are also found ending in consonants, as *sek* and *xik*.

The Mandan is a polysynthetic language and the roots, fixed in a mass of prefixes and suffixes and often joined with other roots, are very difficult to isolate from the material available. Cases of duplication seem to be rare among the roots and no certain example of it can be cited.

Cases of changes in the root vowels are difficult to locate also, as there are only a few examples which seem fairly certain, such as that of *sek* to *sik*.

Reduplication:—Reduplication occurs occasionally, but on the whole seems to play a rather unimportant part in the formation of the language. Probably most of the examples are onomatopoetic in their origin.

Such reduplication is found best in nouns as:—*karasisitka*=ants, *h'kaka*=star, *minihini*=a spring, *raskeke*=summer, *kaka*=raven, *ihika*=owl, *rakanande*=hail, *hokikaka*=crow.

Less frequent cases are seen in the verbs, of which the following are perhaps the best marked:—*katidirotoc*=to shake; *wakikinaruc*=to sing; *kikidacoc*=to laugh.

The use of reduplication to show iteration and frequency does not occur commonly and is probably best seen in the above examples of verbs.

Inflection of the Noun:—Inflection for sex is unusual among American languages and its existence among the Mandans seems improbable, though Maximilian gives an example of something of the sort which he says was occasionally used, thus:—one man=*numank maxana*; one woman=*mihhe maxxana*.

As a usual thing different words are used to differentiate the sexes, or the word for female is added to the masculine. In the imperative there is a general distinction in endings, to a man one says: *isekta*=do thou; to a woman: *isekana*=do thou.

For the formation of the plural the suffix *kerexe* or *kerre*, meaning many, was usually added to the noun; as *mana* (tree), *mana-kerexe* (many trees=a forest). One case of a plural by reduplication is found in *mahna* (year), *manahna* (years). Hayden gives another plural, of which, however, the text shows

193 no sign. It is formed thus: leaf=*ape*, leaves=*apic*, weed=*mahe*, weeds=*mahoc*. In some cases the plural suffix is omitted as in *ideta*=stars. Maximilian gives one case of a dual as: *ahde*=arm, *ahdenahta*=the two arms. Pluralizing in the verb seems to be effected purely by the use of plural pronominal forms.

It might be of interest to note the fact that the suffix *kerre*, many, is very similar to the adverb *kre*, several, used in the same way in Catawba.

There seems to have been no real inflection of the noun for case. But postpositions were used where necessary, and the position of the noun in the sentence marked its relation to the verb. The verb nearly always ends the sentence, the subject, if not incorporated in the verb, comes first and the object next. The pronominal incorporation in the verb usually served to distinguish subject and object.

It is possible that there is a sort of nominal possessive suffix *ki*, but this cannot be proved as the text does not give sufficient examples for comparison. Maximilian gives in his declension of the noun *nümank* (man), an ending *ki*, which is joined to the noun and is supposed to be a sign of the instrumental. This is found occasionally as an ending in the text, and may be a postposition which has gradually become almost an appositional case ending.

Maximilian speaks rather hazily of an article and gives several examples, but this article, which is theoretically a suffix, seems very difficult to pick out, when the postpositions are removed. No trace of an article has been found in the text or vocabularies.

Postpositions:—Postpositions are in common use but not very many of them can be definitely pointed out. The following are, however, certain: *ta*=from, *de*=of, *oh*=to, *askac*=near to, *pexti*=by, *kucta*=through, *rokta*=in, *untaha*=out of, *omakake*=upon.

They may be either joined to the word which they govern, or separate, but usually immediately follow it, as:—*mipextinaka* =sit by me. *Egypt maank untaha*=out of the land of Egypt.

The postposition *ta* also occurs frequently as a verbal suffix, thus *huruc*=to come, and *huta*=come here. In the opposite sense we have *eta* added, which signifies motion in the opposite direction, as:—*Rouhptare eta wahuruc*=I come away from Rouhptare.

THE ADJECTIVE:—The Mandan adjective is found with a simple stem form and a longer form. It is possible that the longer form was at first a compound with the verb *kitoc*=to be, but it has been shortened to a simple *c* or to *ic*, *oc*, *uc*, or *ac*. The verbal meaning does not seem to be always in force with the longer form, but it is always permissable to use it verbally. Thus: *cih*=good, *macihc*=I am good, *nicihc*=you are good, *icihc*=he is good. It is used in the same way with the demonstrative as: *eθcihc*=that is good.

The adjective invariably follows the noun whether it has the long ending or not, and examples of the two forms occur side by side with no apparent differentiation of meaning, as:—*meniss cotte*=white horse, *menisswarut psihc*=black dog.

The plural is not as a usual thing indicated in adjectives, but when the longer form is used as a verb the same suffixes may be added for pluralization as are used with the noun.

There is a full system of adjective comparison in the Mandan, attained by the addition of certain adverbs to the end of the adjective. The two adverbs used are *opaxadehc*=more, and *mihkac*=most. So *cihc*=good, *cihopaxadehc*=better, *cihmihkac*=best. Both forms were sometimes added to a word merely for emphasis, as:—*passa*^{n}*hekociiopaxadehmihkac*=the most beautiful river.

Other examples of adjective comparison are *cirukoc*=wise, *cirukeopaxadehc*=wiser, *cirukemihkac*=wisest; and *hu*^{n}*c*=much, *hu*^{n}*opaxadehc*=more, *hu*^{n}*mihkac*=most.

The use of an adjective with two forms as here, recalls the same feature in Catawba; thus cold is in Mandan *cini* and *cinihuc*; in Catawba *tchin* and *tchinhĕre*.

Color adjectives in the Mandan show nothing particularly distinctive and are nearly in accord with those of most of the other Siouan languages.

The adjectives in Mandan appear to be largely verbal in their

193 character in that they may be regularly inflected with the pronoun.

802 Numerals:—The numeration in the Mandan appears to be formed on a decimal system, but there are points which seem 193 to go against this. The Mandan numerals themselves show no traces of the quinary system on an ordinary observation, but when it is seen that a number of related dialects show signs of that method and that a little similarity can be traced between these systems and that of the Mandan, a doubt may arise as to whether the Mandan enumeration is purely decimal. It must be remembered, however, that the Catawba has a decimal system and that the Winnebago seems to have it.

The cardinal numbers are:—

1.	*maxana*	6.	*kihma*
2.	*nompah*	7.	*kuhpa*
3.	*nahmeni*	8.	*tettake*
4.	*tohpa*	9.	*maxpe*
5.	*kexu*	10.	*piraq* or *pidaks*

The cardinals from ten to twenty are formed by adding the word *ahga* or *ag* to the cardinal, as:—

11.	*ahga maxana*	16.	*ag kihma*
12.	*ahga nompah*	17.	*ag kuhpa*
13.	*ahga nahmeni*	18.	*ag tettake*
14.	*ahga tohpa*	19.	*ag maxpe*
15.	*ahga* or *ag kexu*		

The decades are formed by prefixing the cardinals to *piraq* (ten) or *ampiraq*

20.	*nompah piraq*	60.	*kihma ampiraq*
30.	*nahmeni ampiraq*	70.	*kuhpa ampiraq*
40.	*tohpe ampiraq*	80.	*tettake ampiraq*
50.	*kexu ampiraq*	90.	*maxpe ampiraq*

The intervening numbers are constructed thus, twenty one= *nompah pirake roh maxana*, twenty two=*nompah pirake roh nompah*, etc.

3: Will and Spinden E-5 (1905) 1906
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According to Maximilian the same ending, *c*, found on the adjective so often, is also usually put at the end of the numerals, e. g. 30=*nahmeni ampirakoc*, 40=*tohpa ampirakoc*, etc. 802 193

For the number one hundred, the Mandan had a regular word, but judging from the text at hand this seems to have been corrupted later into the "big ten" of the Hidatsa and other Siouan languages. In 1834 the original Mandan for one hundred was *ehsuk maxana*. The Hidatsa is *pidaki'tia*.

The hundreds run regularly thus, 200=*ehsuk nompa*, 300=*ehsuk nahmeni*, etc. 101=*ehsuk maxana roh numpoc*, etc., 1000=*isukki kakohi*, 1001=*isukki kakohi roh maxana*, 1100=*isukki ahga maxanac*, 2000=*isukki kakohi numpoc*, 10000=*isukki kakohi pirakoc* (Maximilian).

The cardinal numerals are used like the adjectives and follow the words modified; thus, ten commandments=*toinksa pidaks*. The word for one half is *ihcanhe*.

The ordinal numbers are formed in about the same way that abstract nouns are formed from adjectives, that is the syllable *ko* is prefixed to the cardinal. In addition the numerals seem to add also the syllable *hank* except in the case of first, which moreover is not formed from the cardinal. According to Maximilian, the ordinals run as follows:—

first—*koonti*
second—*konumpehank*
third—*konahmenihank*
fourth—*kotohpahank*
thousandth—*kosukkikakohihank*

The syllable *hank* may be derived from *iohanke*, the word for end. The word for last is formed with the aid of the same prefix, *koihkahce*.

The numeral adverbs as once, twice, etc., are formed as follows; once=*xanahre maxanac*, twice=*xanahre numpoc*, etc.

The Adverb:—Of the adverb little need be said; the distinction between them and the postpositions on one side and the adjectives on the other is very difficult to make. In fact adverbs often appear as little more than modifying suffixes. The two adverbs used in comparison have been already 193 mentioned and in addition a few more may be noted; as, *takbaktoc*=perhaps, *horakekusero*=day before yesterday; *tenhac* =afar off; *matxeomasta*=day after tomorrow; *askac*=near to, also used as a postposition; and *domapeha*=below.

CONJUNCTIONS:—The Mandan seems to show nothing noteworthy in the line of conjunctions, and so far only a few have been noted. Among these are *kani* or *qani*=and; *kaktek*=and; and *kacka*=for. Maximilian says that there was no word for "or," indefinite pronouns as *kotewektoc*=one or the other, being used.

THE PRONOUN:—The pronoun in Mandan is perhaps the most important part of the language. It is of the same type as those of other Siouan languages and closer relationship with other Siouan dialects is shown thus than in any other way. Pronouns of all the usual classes are found and separable and inseparable forms of the personal pronouns occur.

DEMONSTRATIVE PRONOUNS:—Of the demonstratives but little can be said. They are not fully worked out and cannot be so until more text is procured. Maximilian gives us two, however, which seem fairly certain; these are *ant*=this, and *cθ*=that, and their use is illustrated in the following sentences:— *eθ hackac*=that is great, *antcihc*=this is good. Besides these, there seems to be a trace of the Dakota *tona* and *de* as in the compound *demankahe*=(?), and *taadona*=these.

RELATIVE PRONOUNS:—Of the relative pronouns more is known. There is a fairly long list and the meaning of all is practically certain. The principal relatives are *tewe* or *teve*, who, *kotewe*, which, *ta*, what. These furnish the basis for other relatives as well as for the indefinite pronouns.

Directly based upon them are *teweoca*=whoever, and *taadocka*=whatever.

INTERROGATIVE PRONOUNS:—The interrogative pronoun is also found, closely related to the relative. "What" or "how" is *tasxaL*. "What person" is *iinkotewe* and "what thing" is *aankotewe*. "Whose" is the relative *teve*, as *teve ti otic*?=whose house is that? As can be seen these are based upon the relatives *ta* and *tewe*.

INDEFINITE PRONOUNS:—The indefinite pronouns also bear a close resemblance to the relative from which they are likewise derived. The following are the known examples; *tanhe* or *tahonc* =other, *ikotui*=something, *matewe* or *watewe*=anything, *matewedocka*=anything whatever. Their use is seen in *mipextit matewe xopini tanhe wadakanixinistoc* thou shalt have no other gods before me.

PERSONAL PRONOUNS:—The Mandan personal pronoun seems to have two different forms. These two forms are the incorporated and the independent. Of the incorporated pronoun the subjective form is used as subject of a transitive verb; the objective form is used as object of a transitive and as subject of an intransitive verb. The independent pronoun is formed from the stem of the objective pronoun by means of a regular suffix.

	Incorporated subject		Incorporated object
	Singular		Singular
1	*wa*	1	*ma* or *mih*
2	*da* or *θa*	2	*ni* or *ih*
3	*i*	3	*i* or *ih*
Dual	*nunompca*		
	Plural		Plural
1	*nu*	1	*nu*
2	*niaθa*	2	*nia* or *niaθa*
3	*ia*	3	*ia* or *iaθa*

Attention should be called to the presence in the subjective series of the dual, which also occurs in the Dakota, but seldom in Hidatsa or Crow. The above forms probably vary somewhat in pronunciation as Maximilian gives slightly different versions. It is also probable that he confused the objective and subjective as the subjective forms given above from Hayden seem to agree better with the text than do his.

The independent forms are:—

I	*miona*
thou	*niona*
he	*iona*
we	*nuona*
you	*niaona*
they	*iaona*

193 Maximilian gives a table of so called case inflections as follows:—

I	*mih*	thou	*ih*
of me	*mannan*	thine	*nita*
to me	*mo, rohdeta*	to thee	*nih*
from me	*roheta*	thee (obj.)	*nih*
me (obj.)	*wak*		

The *mih* and *ih* are clearly the incorporated objects, while *mannan* and *mo* though clearly connected with the pronominal stems are irregular, *roheta* and *rohdeta* seem to lack entirely the pronominal roots.

It is probable that the *mih* and *ma* or *wa* are to some extent interchangeable for the first person subject, although only *wa* occurs in such text as is at hand. Maximilian, however, gives one or two examples of its use, as in *mihnihrotke*, I will strike you. Also one with the intransitive verb as *mannan ihnkidicihc*, you are ashamed of me.

The first example above shows the use of the regular objective pronominal incorporation, as does also *wadakanixinixtoc*, thou shalt not make to-thyself, in which *da* and *ni* stand respectively for subject and object. In the transitive verb the subjective pronoun invariably precedes the objective.

A table of the pronouns in transitive and intransitive verbs follows.

Subjective pronoun with transitive verb:—

wawàrutohc	I eat
wadarutohc	you eat
ihwarutohc	he eats
nunompcarutohc	we two eat
wanurutohc	we eat
niaθarutohc	you eat
iarutohc	they eat

Objective pronoun with intransitive verb:—

macihc	I am good
nicihc	you are good
i"cihc	he is good
nucihc	we are good
niacihc	you are good
iacihc	they are good

Possessive Pronouns:—In the possessive pronoun two forms are also found, the independent and the prefixed. Both are formed from the objective incorporated pronoun. They are as follows:—

Independent	Prefixed
mita	*mi*
nita	*ni*
ita or *ta*	*i* or *iko*
nuta or *nuetta*	*nu*
niata	*nia*
iata	*ia* or *iona*

The independent forms always precede the word modified as do also the prefixed forms. An example of the latter follows:

minuha^{n}*ke*	my daughter	*minuha*^{n}*koc*	our daughter
ninuha^{n}*ke*	thy daughter	*nianuha*^{n}*koc*	your daughter
ikonuha^{n}*ke*	his daughter	*ionanuha*^{n}*koc*	their daughter

The Verb:—The verb "to be" is *kihtoc* and is inflected as other verbs. It is used largely with the meaning of "to exist."

As has been said the adjective ending in *c* seems to take the place of a substantive verb and *kihtoc* is scarcely ever seen. "To be rich" is expressed thus — *wakahdahun,* great riches. "I am good" is merely *macihc, cihc* being the adjective good.

In questions likewise, the substantive verb is usually omitted as *teve tameniskeric*? = whose horses are those? and *teve ta otic*? = whose house is that?

It is noticeable that to the nouns also the *c* is suffixed when the substantive verb itself is omitted, and it is possible that this ending is a regular verbalizing ending which takes the place of the substantive verb throughout the language. Further investigation with additional text would be necessary to verify this however.

Tense:—So far four tenses have been distinguished in the Mandan although it is very possible that there may be more. Those noted are, present, future, an aorist, and a tense of completed action.

193 The present tense is the ordinary form of the verb and is shown in such words as, *wapusoc*, *rutoc*, *sakoc*, *ktaⁿhoc*, and *rapanaruc*.

The future is formed regularly, but with a modification for verbs with stems ending in *t*. The sign of the future is *t* and it is usually placed immediately before the final *c* with its accompanying vowel, as *sektoc* from *sekoc* and *wapustoc* from *wapusoc*. When the verb stem ends in *t* however as in *rutoc*, a doubling of the *t* would fail to make an audible distinction and an *s* is placed before the *t* giving *rustoc*. In some cases euphony requires other changes which accompany the suffixing of the *t* as in *rapanaruc* to *rapanaktuc*, and *heric* to *herikitoc*. In this case, however, it seems possible that the added syllable may mark a different tense idea. One verb was found which did not have the future sign but which Hayden gave as a future. This too may have been a modified tense; the change as given from present to future occurs in the last syllable, *kapkec* becoming *kapkekoc*. It is possible that this latter form should be *kapkektoc* which would coincide with the other examples.

What seems to be an aorist is translated at times by Hayden as "to be doing all the while" and at others as a perfect, making the distinction between the completed past and this, by translating the first as "I have done eating," the second as "I have eaten" clearly implying that the latter is hardly a real perfect.

The sign of this tense is the suffixing of *amaka* or *amaⁿka* to the verb stem. This causes certain other minor changes in the the word for the sake of euphony. Examples of this appear in the following from *wahendut* meaning "I drink."

	Present.	Aorist.
1.	*wahenduc*	*wahenamamakahoc*
2.	*θahenduc*	*θahendamakahoc*
3.	*iⁿhenduc*	*iⁿhendamakahoc*
1.	*nuhenduc*	*nuhendamakahoc*
2.	*niahenduc*	*niahendamakahoc*
3.	*iⁿahenduc*	*iahendamakahoc*

It is seen that the inflection is perfectly regular, the extra *ma* in the first person being the first personal pronoun, the first *wa* having become a part of the verb itself as in *wakahktoc*, *wasekoc* and similar examples. In addition to the suffix, a consonant is placed before the final syllable to prevent the occurrence of two vowels together. Indeed it almost appears as if the aorist is formed by adding *amankahoc* to the verbal stem. This holds true with the verbs *rutoc* and *kapusoc*, with the stems *rut* and *kapus*, giving *rutamaⁿkahoc* and *kapusamaⁿkahoc*.

The tense of completed action seems to be formed by adding *kexeruc* to the verbal stem, the pronoun being at the same time repeated, occurring once before and once immediately after the stem, as, *wadahenθakexerus*, thou hast done drinking, and *wawarutwakexeruc*, I have done eating; from *wahenduc*, to drink and *warutoc*, to eat. Particular attention is called to the position here of the pronominal forms *θa* and *wa* at the beginning of the word and their repetition near the middle. This peculiarity leaves the exact method of forming the tense somewhat doubtful, especially as there are but three or four examples discoverable. However the above gives at least an approximation of the method.

The infinitive in Mandan consists of the verb without the pronominal affixes, as *isekoc* and *warutoc*. The past participle seems to be hard to find. Maximilian gives one example, *kuhruc*, done, from *isekoc*, to do; in this case the participle appears to be formed from another stem. In two other cases the infinitive itself is used as the past participle.

There are two other distinguishable participles, a present and an aorist. The present seems to be little more than the verbal root thus, *ikhaⁿ* from *ikhaⁿhoc*, and *ratze* from *rataruc*.

The aorist participle seems to be the regular aorist form without the pronominal affixes. Examples are *isekamaⁿkahoc* from *isekoc* and *warutamaⁿkahoc* from *warutoc*.

MODE:—*Indicative*—This is the original form of the verb with the ordinary pronominal inflection. There are no peculiarities which require mention.

Subjunctive — There seems to be a sort of subjunctive in the Mandan the use of which cannot be pointed out accurately. It occurs often with the imperative in a command but is also found frequently in other forms. The sign of this mode is *hada* suffixed to the verb immediately after the root or after the pronoun if that follows the root. Not enough examples have been collected to discover the exact meaning of this form of the verb but the following will give some idea of its use.

huhadata	may (it) come.
waxopinidahadaxinistoc	thou mayest not honor.
hedemahadata	save me (let me be saved).
mahadata	let me.

This last form gives *hada* as a verb in itself and seems to mark it as a sort of auxiliary.

Imperative — The Mandan imperative has two forms, one used to women, the other to men. The signs of the imperative are the suffixes *ta* and *na* joined to the verb root, at times with a vowel between for the sake of euphony. *Ta* is used in speaking to a man, *na* to a woman. It is likely that the first expresses a request, the latter a command.

From the verb *rutoc* are *ruta* and *rutana*. From the verb *ratahosh* are *rata* and *rahana*.

Maximilian gives one or two other forms also which tend to show a personal inflection: first person, *warusta*, second person, *warutenista*.

This shows the use of the first person *wa* and the second person objective *ni* with the imperative.

VOICE:— On the question of voice practically nothing can be said. The text offers us no examples of passives nor do either Hayden or Maximilian mention anything of the sort.

NUMBER:— As has been said the number in the verb is shown entirely by the incorporated pronoun; further than this no distinction is necessary and none exists. We have already seen that singular, dual, and plural pronominal forms are found and these are all incorporated into the verb.

VERBAL INFLECTION WITH PRONOMINAL SUBJECT: — Examples of verbal inflection with the pronominal subject have occurred through all the previous discussion and need not be further illustrated.

Verbal Inflection with Pronominal Object:—Examples of the incorporation of the objective pronoun into the verb are frequent, a number have already been given in treating the pronouns on page 198 and a few more follow; *wanirotkec*, I strike you; *kieuknihedis*, he led thee; *numank iteruc*, the man kills him.

Verbal Inflection with Nominal Object:—This is merely the regular verbal inflection with an uninflected noun placed before it usually. Such are *kohaⁿte warutoc* = I eat corn, *ptemde ihrotkec* = he hits the buffalo.

Nominalizing Affixes:—Owing to the lack of text, nominalizing affixes have been very difficult to isolate, and only three can be pointed out with certainty. Two of these are prefixes, one of which, known through Maximilian, was confirmed by the text; and there seem also to be signs of a suffix, but sufficient examples were not found to make sure.

The first prefix mentioned is *wao* or *wado* and seems to be akin to the Hidatsa *maadu*. Examples of this are seen in the following: *wadorute* = food, from *rutoc* = to eat; *waosinhe* = strength, from *sinhuc* = strong; *waotes* = death, from *tehuc* = to kill; *waoxik* = sin, from *xikoc* = bad.

The other prefix seems to make an abstract noun from the adjective. It is *ko*, and its use is shown in the following examples: *kocihc* = the good, from *çihc* = good; *koahxkereh* = the poor, from *ahxkereh* = poor; *kowakahde* = the rich, from *wakahde* = rich.

The apparent example of a suffix seems to indicate the nomen actoris. The only instance of its use is in *wanundexte*, thief, from *wanunduc* = to steal. The ending *xte* occurs elsewhere as an augmentative as in *mini*, water, *minixte*, the ocean, and seems related to the Hidatsa *ic'tia*, big, being used in much the same way.

The Negative:—The negative "no" in Mandan is *megoc* and "yes" is *hoⁿ*. These are clearly given in all the vocabularies. The formation of the negative verb, however, is nowhere discussed by previous writers. The sign of the negative seems to be *ni* suffixed to the verb immediately before the common

193 ending in *c* or the tense sign if it is present, and recalls the Dakota negative *cni*. In some cases, however, it seems to be modified by what appears to be reduplication, although this latter on a more extensive study of the verb might prove to perform an entirely different function. Certain sound shifts also occur occasionally as in previous examples of suffixing but do not change the verb noticeably. Examples of the negative *ni* alone are found in the following: *wadarutenihoc* = you do not eat, from *wadarutoc* = you eat; *wawakanixtoc* = I shall not have; from *wawakaxtoc* = I shall have; and *wawahenihoc* = I do not drink, from *wawahenduc* = I drink.

Examples of negatives which seem to show some sort of reduplication are as follows; *wadakanixinistoc* = thou shalt not have, from *wadakaxtoc* = thou shalt have; *waidasikinixinistoc* = thou shalt not make to thyself, from *waidasektoc* = thou shalt make; *waxopinidahadaxinistoc* = thou mayest not hold as sacred for thyself. In all these forms there is also a reflexive of some sort and it may be that the seeming reduplication is merely a reflexive form. Further text might clear up these points and bring to light in addition a reflexive, but at present it can only be said that *ni* is the negative sign but often appears with what seems to be a reduplication.

INTENSIVE PARTICLE:—The intensive particle "very" seems to be expressed by an adverb, *kucoc*. This seems to be used either before or after the modified word with no apparent distinction. In very bad, *xik kucoc*, it is found after the adjective; in *kuce cihc*, very good, it precedes the adjective. When the particle follows the adjective the ending of the latter seems usually to be dropped.

COMPOSITION:— *Derivation* — Among primitive languages
193 derivation is often easy to trace and this is true in the Mandan.
192 The ideas were at first simple and the vocabulary small. As the people developed in experience new names were required and instead of devising new words old ones were modified to fit. A good example of this is *watuc*, copper, from which came *watucseda*, brass, *watuc cotte*, silver, and other forms for metals.

Mana, wood or tree, gives *manasuk*, (*mana*, tree and *suk*,

child), meaning bush, also *manaroxte*, forest. *Warade*, fire, 193
gives *wararakce*, firebrand, and *warakapidihe*, flame. 192

Again from *po*, fish, comes the word for fin, *posi*, literally fish-feather. From the word *waci*, white men, comes the word for flour, *wacita*. *Mini*, water, also gives a number of derivatives among which are the words for flood, *minisukhedic*, and for bank, *miniwakaxta*. From *tohe*, blue comes *wiratohe*, green.

Compound nouns — There is no lack of compound nouns in the Mandan and their formation is the same as in English, the modifying word coming first.

From *ci*, foot, and *psih*, black, comes Blackfeet, *Cipsih*. *Poikinnih*, fish-hook, is a compound similar to the English one. Bird, *mandek*, with the word for young animals, *nixe*, gives egg, *mandenike*. The elm is called bow-wood, *manawaraerup*. For grandfather we get *tatecike*, old father.

The Mandan personal names, which always had a meaning, [551]
were often represented by very long compounds as were many of the society names.

Composite verbs:—The compounding of one verbal stem 193
with another is not a very common feature in the Mandan but can be plainly noticed in a number of examples. There are probably other cases which cannot be distinguished among the long verbal forms, as the separate stems are not known. Besides this doubling of verb stems there is also an incorporation of nouns into the verb in order to complete the meaning.

Actual double stems occur in the following examples; I shall come and sit down, *wahunawaxkanakoc*, *huruc*, to come, and *kanake*, to sit; I decoy, *wattaxahhuruc*, litterally, I call to come; I fast, *nahnkawawarutenexoc*, literally, sit I eat not; Maximilian gives "to shoot at," as *ohxatakerehuc*, and translates it, "he has gone away wounded;" to sleep is *hanaruc*, to fall asleep, *wahanaedukeckuc*.

Examples of compounding with nouns are: to smoke, *manacsinduc*, tobacco to smoke; to scrape, *unkaheric*, fingers to rub; to swim, *miniputxuhuc*, water to push.

In the foregoing an attempt has been made to present a 000
sketch of the grammatical construction of the Mandan language

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000 by gathering together all published materials and adding a number of points gained from a study of texts and vocabularies. Many features however remain to be cleared up and with further text material a great deal might be added to our knowledge of the language.

A few tables of comparison with other Siouan dialects are appended in order to give some idea of the position which Mandan occupies within the stock.

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I. INDEPENDENT PRONOUNS.

	Mandan	Hidatsa	Crow	Dakota	Iowa	Catawba
I	miona	miki	bi	miye	meae	diyi
thou	niona	diki	di	niye	deae	yiye
he	iona	iki	i	iye	aeae	owa
we	nuona	midoki	birud	unkiye-pi	heae	hiha
you	niaona	didoki	dirud	niye-pi	dewe	wiwa
they	iaona	hidoki	irud	iye-pi	aeae	owa

II. SUBJECTIVE INCORPORATED PRONOUNS.

	Mandan	Hidatsa	Crow	Dakota	Iowa	Omaha	Winnebago	Catawba
I	wa-	ma-	b-	wa-	ha-	wi-	ne-	di- de- or mi-
thou	θa or da-	da-	d-	ya-	ra-	thi-	neninenu	yi- or ye-
he	i-	—	i-	—	ae-	e-	e-	owa- or oa-
we (dual)	nunompca-	—	—	uⁿ	—	—	—	napri
we	nu-	ma-	bu-	un-pi	he-	ungu-	newankerina-	hi- or ha-
you	niaθa-	da-	du-	ya-pi	de	thi-	—	wi-
they	ia-	—	i-	-pi	ae-	e-	—	oa-

III. CONJUGATION OF TO EAT.

	Mandan	Hidatsa	Crow	Dakota	Winnebago
Root	rut	dut	duc	yut	rut
I eat	wawarutoc	muti (ts)	babuce	mata	wahatcona
thou eatest	θawarutoc	duti (ts)	baduce	yata	waratcona
he eats	ihwarutoc	duti (ts)	ibaduce	yuta	ewarutcona
we eat	nuwarutoc	muti (ts)	———	uⁿtapi	hewarutcuwinu
you eat	niawarutoc	duti (ts)	———	yatapi	anatcwaratciwize
they eat	iawarutoc	duti (ts)	———	yutapi	anatcwaratcide

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IV. POSSESSIVE PREFIXED FORMS.

	Mandan	Hidatsa	Crow	Dakota	Iowa	Winnebago	Catawba
my	mi–	ma–	ba–	mi– or ma–	he–	nianinu	di–
thy	ni–	di–	da–	ni–	de–	zeku	yi–
his	i–or iko–	i–	i–	—	e–	—	oa–
ours	nu–	ma–	—	u^n-pi	he–	nianiwida	dowa–
yours	nia–	di–	—	ni-pi	de–	acinina	—
theirs	iona–	i–	—	—	e–	ianideda	owa–

V. NUMERALS.

	Mandan	Hidatsa	Crow	Dakota	Omaha	Winnebago	Osage	Catawba
one—	maxana	duetsa	hamat	wantca	wi	izakida	minehi	dube
two—	nompah	dopa	nop	nonpa	wamba	nomp	nomba	no^{n}prere
three—	nameni	dami	nam	yamni	thabathi	tan	laubena	nomnere
four—	tohpa	topa	cop	topa	duba	cop	toba	porprere
five—	kexu	kihu	tsixop	zaptan	satan	satc	satta	poktrere
six—	kima	akama	akamak	cakpe	cape	akewe	cappa	dipkrare
seven—	kuhpa	sapua	xapua	cakowi^n	penamba	shagowe	panomba	wassignurere
eight—	tettaka	dopapi	nopape	caxdogan	pethabathi	haniwunk	kelauban	dowesare
nine—	maxpe	duetsapi	amatape	napci^{n}wanka	canka	hizakicanskani	canka	wantcharere
ten—	piraq	pitiki	piraka	wikcemṃa	y'ethka	kerapunaze	crabra	pitchinere
eleven—	ahga maxana	ahpiduetsa	piraka mata	ake wantca	'ạy'thwi	izukida cina	augre minehi	pitchin napere hasare

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VOCABULARY.

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This vocabulary has been compiled from those taken down by Catlin, Maximilian, Hayden, Morgan and Schoolcraft. All the different words were gathered together, and were then transliterated into a uniform, phonetic spelling, corresponding with the alphabet used in the grammatical sketch. Where different forms were given for the same word, the form adopted has been that most in accordance with the phonetic character of the language. This has usually resulted in an agreement with the forms as given by Maximilian.

A.

abode — iwakcuntuc
above — aketa
afar off — te^{n}hac
affection — paxade
aim, to — mitahruc
alive — nankec
all — a^{n}be
alone — ĩixa
always — ama^{n}kahuc
ambassador — kasedehc
ampelis (a bird) — ohpakotika
and — kani or qani
animal — wahokcukke
ankle — tauihhankac or asohkeninde
antelope — koka
" buck — kokberoke
ants — karasisitka
anything — itaskacka or itaskacLa
Arapahoe Inds. — Arapahoes or Axixte Numankake
Ark (of first man) — mahminituxe
arms — ahde
arm bands, of metal — u^{n}kita^{n}he
arrow — mahha
as far as — ohdada
ash — tahm
ashes — waracunte
ask — kümahxec
Assiniboine Inds. — Hosika
aunt — kohtmini-kohe
aurora borealis — wawawacirute
autumn — ptande or manaahpo
axe — ohmanatĕ

B.

baby — sukxamahe
back — nupxe
backwards — nacita
bad — xikoc
Bad Lands — see land
badger — mahteke
ball (of lead) — wahtocemahe
ball or play ball — mihptohtkic
bake — rokinni
bank — miniwakaxte
bark — manaa
basket (women's, of leather) — xehank
bat — hahxurahde
to be — kihtoc
beak — paxu
beans — ominikekene
bear — mahto
bear, grizzly — mato unknapininde
beard — hikerukis

beaver — warahpa
beautiful — eihc
bed — omunkasekoc
before — untihedic
behind — nacitero
behold — hanista
belly — ahxi
below — mapita
belt — ihparaxe
berdash — mihdeke
besmooch — tkapoaheric
best — kocihc
between — nasta
beyond — kuta
birch — wahxoc
bird — mandek
bite — nacec
bitter — pahruc
black — psihc
blackbird — tuxika
Blackfeet Inds. — Cipsi
bladder — idaxe
blind — istaxedetoc
blond — pahinsihduc
blood — ida
bloody — ihkerrede
bloom, to — hohsedehoc
bloom on fruit — ratakoc
blue — tohe
bluff, a — kucapehckac
body — maandac
bog — manixte
bone — ahude
both — nompca
bottle (of leather) — ihduke
bow or bend, to — kiskoppoheric
bow — waraeruhpa
bow-lance — eruhpahixte
box — widake
box-elder — mihnxkatahmanaka
boy — suknumank
braid, to — kackec
brains — natenu
branch — ohxanxa
brandy — minipahre
brass — watucsede
brave — kakahonc, xarake
bread — wapabci
break — pehruc
breast — taxaraxe
breath — onihe
breechclout — mike
bridge — manaaxkinihnde
bridle — menissikaske
brilliant (splendid) — eduxtukoc
bring forth — ehtuc
broad — pxihruc
brook — passankcuk
broom — i^{n}kagicka
brother — mo^{n}ka
brown — tkop
bud — aci^{n}koc
buffalo — ptemde
" (bull) — beroke
bullet pouch — assohkaxeruke
burn (or roast) — naxuhduc
burn — raptec
bury — omahxedeherec
bush, a — manasuk
buttocks — ihta
buy, to — kauikahka
by — pexti
by and by — issakanacoc

C.

cache — moxe
call — rukeric
calm — ihpatahcckac
Cannonball R. — Passa^{n}xte
canoe — menanka
captive — inishedic
captured — ihnise
carrion — kommahe
catfish — potande
charcoal — behxe
cheat, to — manoxaharuc
chew, to — rapsahkoc
Cheyenne Inds. — Tamaho^{n}ruckape
chicken (prairie) — sipuska
chief — numankci
child — sukxamahe
chin — ihku

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choke, to — niheohwaptec
chop down — manakaseheric, pauicohe
circle, a — ohkamickakuc
claw — unkahe
clean, to — ihkixkanhuc
clear the throat, to — hauikisckuc
clear — dexe, karacekoc
cloud — haade
coat — imacote
cold — cinihuc
colibri — manacopkoxaxka
colt — uⁿpamenissinikac
comb — paiwaxuⁿke
come, to — huruc, kuhohc
come here — huta
comfort, to — kehapheric
comfortable — ohmanakacic
compel, to — siⁿhiⁿkehde
complete — wakiⁿkoc
completely — ratakoc
conciliate, to — herohkaheric
cook, to — umpec
copper — watucsekeri
corn — kohaⁿte
" meal — mapexeri
corpse — watehhede
costly — icahehonc
cottonwood — manawaxe
cough — kokeruke
council fire — kaheruka warade
" house — kaheruka kahur
count, to — pakirihduc
cover — ahkupoc
cowardly — wakaraxkahc
crane — tehreke
Cree Inds. — Cahi
crooked — skophoc
Crow Inds. — Hehderuka
crow — xohxixaka
crush — rusiⁿkoc
cry, to — sarahruc, rataxoc
cryingall the while — ratuxeamaⁿkahoc
cure, to — kinikohc
curly — minimenihc

cut, to — pawecuc
cutting — pohkhaⁿ

D.

Dakotas — Hahenumankoc
dance — wahnape
scalp-dance — wikskekenahpic
dark — hampaheriskah
daughter — sukmihuc
" in-law — ptauihhangkac
day — hampah, kacekoc
dead — otehruc
deaf — nakocsidikoc
death — waotec
deceive — kauxac
decoy, to — wattaxakhuhroc
deer — mahmanaku
" (black tail) — cumpsi
delay, to — ohikahunwaheric
destroy, to — kimixerec, tedepohc
Devil (Evil Spirit) — Omahankxike
dew — beddede
die — teruc
dirty — waratkeric
disappear — kcipoc
dish (wooden) — manapaxe
distant — tehaⁿc
divide — ihkapehduc
do, to — isekoc
dog — menisswarut
door — bedehe
doubled — nahtac
draw — inisuc
dream, to — xikhedehc
drink, to — heⁿduc
drive, to — koxehrutoc
drop — sehuc
drum — berexe
dry, to — sahkoc
dry up, to — rasakoc
duck — patohe
dull — sukohc
dumb — wahronexa
dung (of an animal) — ehde
dust — warate

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E.

eagle, war — mahxsi
“ bald — patake
ears — nakoha
early — wamampsita
eat, to — warutoc
egg — mandeksuknike
elbow — akcicenahde
elevation — maaxte
elk — ompa
“ female — ompa mihkac
elm — manawareruhp
empty — okikohe
end — onakeoha^{n}kte
enemy — wirata^{n}de
enough — antexkac
err, to — xiqaheric
escape — ptehec
evening — istundehuc
everywhere — ekunheakskewaheric
eyelid — istarapxe
eyes — ista
explain, to — ikikuhntec
express, to — ihkastatuc

F.

face — estah
fade, to — daxihduc
fall, to — dopxec
fan — ihkerehedite
far — ruhxedeta
fasting — nahnkawawarutenexoc
fat — sihnde
“ melted — ihkeri
father — tate
fear — wohkaraxka
feather — si
“ headdress — wokiruc
feel — packatuc
female (of an animal) — mihkac, mika
fetch — kitahuc, kixkararuc
few — sankac
file, a — watuciwipuci
fight, to — sahnduc
fin — posi
find, to — onopohc
fingers — unkahe
“ first — unkamihe
“ middle — unknatkakanaxka
“ fourth — unknatsemingke
“ little — unkniingke
fire — warade
firebrand — wararakce
fish — po
“ to — pohrupcikohc
fisher (a bird) — iitikpsi
fish-hook — poikinnih
fist — o^{n}kirasanake
flank (of the body) — dopicanhe
flat — pcihde
flatter, to — ihkiriahkawacuc
flea — pecki
flesh — oro
flint — mahikcuke
flood, to — minisukhedic
flour — wacita
flower — osedehe
fly, a — hamparaka
‘ to — kikarehduc
foam — puxte
fog — masihc
follow — waxahuc
food — worute
foolish — oxkac
foot — ci
forehead — ithake
forest — manaroxte
forget, to — ikihanxikac
forks (of a tree) — manaokisa^{n}ka
foul — natkaxihpoc
fox — irute
“ gray — hirutcote
“ red — hirutse
“ black — hirutpsih
“ prairie — ohxa
free — wainihsinixoc
freeze — ktahohc
friend — manuka
frog — psanka
frost — istunhewahetuhc
full — ohihc

3: Will and Spinden E-5 (1905) 1906
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G.

gall — waxsihde
gay-colored — puhse
girl — sukmihe
gloves — ogixitike
go, to — dehuc
go forth — huhketa
God — Omahank Numankci
gold — watacisidegocikeric
good — cihc
goose — miha^{n}
" wild — miha^{n}kcuke
grandfather — tatecike
grandmother — nancike
Grand River — Waracunt Ptassahe
grass — xanxe
" dried (hay) — xanxesakoc
" sharp (thistles) — xancixena
gray — xote, cote
grease — ikeri
great — xtec
Great Spirit — Maxopinita
green — wiratohe
groan, to — inihe
ground — manpeteroh
grow, to — inihnduc
growl, to — xanahhahoc
gull — ixtikpsih
gun — eruhpa

H.

hail — rakanande
hail, to — rapanaruc
hair — pahin
hairless — paheserokoc
hair ornament — itahwacungke
half — ihxanhe
hand — onka
handsome — cinacuc
hard — kahsec
hark — ha^{n}ta
hate, to — worattehuc
have, to — wakahktoc
hawk — teta^{n}he
he — i, ih
head — pan
head-ache — panahruc
head-dress (of feathers) — mahxsi akubhacka
head ornament — pa^{n}okatkape
hear, to — waec
heart — natka
heat, to — manasinkoc
heaven — xaretohoc, maxopeni-omanke
heavy — t'kac
heel — cirute
help, to — ohtawasakuc
hereafter — ha^{n}ka
hide, to — axawehe
high — wahkoruc
highlands — mahankwaihkoruc
hill — oparace
hist or hush — ihampta
hoarse — hohxikoc
hole, cavity — opohpuc
hollow — xowokoc
hoof — cahhe
hope, to — iwatehruc
horns — anse
horse — meniss or umpameniss
hot — dsacoc
house — oti
hunger, to — waruhtec
hunt, a — cante
" to — wahnundehuc or canterehuc
hunter — kacanteka
hurrah — ukahe
hurricane — cextec
husband — ibero

I.

ice — xode
in — rokta
inquire — kimaxec
intoxicate, to — russidihruc
iron — watucemahe
island — witka
it — unt
itch — ciruha

J.

jaw — dohhupa
joy — nectkacic

K.

kettle — biruxe
kettle-tender — kapexka
kidneys — piksukeh
kill — teheruc
kindle — rapteheric
kinikineck — manasaxka
Kiowa Inds. — Kaiwa
knee — i^{n}ta or sapaxe
knife — ma^{n}hi
knock — wahuhde
know, to — ihwahekoc

L.

lake — minixte
lame — onindexikoc
lament, to — nahdeiratahuc
lance — manahiterukcuke
land — maank
  Bad Lands — maxiki
lash, to — karaparacuc
last race (in Okeepa) — ehkenahkanahpik
late — hapetepanic
laugh — kikidacoc
lay, to — makherehc
lead — watucamahe (Cf. iron)
leader (of a war party) — karokkanakah
leap, to — pedehc
leather (dressed) — wapa^{n}piimacote
leaves — manape
left, on the — nususkac
leg — dohka
leggings — wapa^{n}pihu^{n}ci
level — kahosta, opcidecic
lie, to — cehekohc
life — nankec
lift, to — ruhxopkac
light — idehuc
light, to — ihdexewaharic
lightning — xeninde
like, to — watihkidasuc
lips — ihxdopxi
listen to, — minnakocwakerupcec
Little Missouri R. — Mantaktcuka
live, to — inihuc
liver — pi
log — manaite
long — hacka
love, to — paxare
love sticks — mihhirucekehkaruc
lungs — koppehk
lynx — matoxka, cuntepuse

M.

magpie — wihkxakxeke
man — numank
mankind or people — numankahkec
many — hanktec
master of the Okeepa — okipakasika
meal (Indian) — koha^{n}te gatiriki
meat — maskape
medicine — xopinic
  " lodge — tixopinic
  " feast — maxopinicwahedic
medicine-man — numankxopinic
melt, to — racedehc
midnight — istunatoc
mine — wawakahruc
mink — monika suntike
mirror, a — ihmi^{n}kiec
miss, to — kakaho^{n}c
Missouri R. — Mantahe Passahe
moccasins — humpa
mole — maxtopka
money — okihkikidasuc
moon — istamenahke
moose — paxuptaptax
more — opaxedehc
morning — mampsita
  " early in — wamampsita
mortar — ipeke
most — mihkac
mother — hu^{n}de
  " in-law — ptohinix

3: Will and Spinden E-5 (1905) 1906

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mountain — maankxtec, oparacxtec
mouse — mihtike
mouth — ihe
much — kerexe, hunc
mud — tuntukoc
Muddy R. (Platte) — Matuhntu Passahe
mule — cumpsimeniss
murder — tehruc
muskrat — cantcuke
Musselshell R. — Tohki Passahe

N

nails — onkahe
name — dase
nape of the neck — nahkute
narrow — kcukoc
navel — doptasu
near — askac
neck — itaenu
necklace — warapeniⁿxe
" of bears' claws — mahto-onknapinihude
needle — mihstuhereohopetuhc
negros — wacipsi
nest — taxande
net, fish — poikuhnde
nettle — xaⁿhiganade
never — mekimikoc
new — nankac
night — estogr
night-jar — pihska
no — megoc
noon — hampenatoc
north — misiahankta
northeast — misihanktaropuc-ahankta
northwest — agahanktarotamisa hankta
nose — pahu
nostril — pahxusuh
nothing — mikska, mikohc
now — naka
nude — ikarasuninakoc

O.

oak — manaitahu
obscure — ihinikoc
of or from — ta
oh! — ca!
old — xihoc
old man — waratohkaxihoc
old woman — rokankaxihen
Omaha Inds. — Ohmaha
once — xanahremaxanac
one or the other — kotewektoc
open — rupcukoc
opened — rupcuk
other — tahonc
otter — pehxtekeh
Ottoe Inds. — Ohto
outside — matinda
oversleep, to — owakinatekahunhuc
owl — ixixe

P.

paddle — ipaxaka
pain — wahuhdenahduc
paint over, to — wakapusoc
pair — nupca
palate — nutiskeokissangka
pale, to — sterukeceh
panther — cuntehacka
parfleche — wakexde
part — okape
pasture — pokanahhuc
path — nanko
Pawnee Inds. — Xaratenumanke
peace — herohkaheric
peas — omeniassamakeri
pelican — nutkuxte
people — wakahde
pepper — waparepsi
perhaps — tuchaktoc
pig — wacitamato
pigeon, wild — warawitkcuke
pinch, to — ruhckapuc
pine — manaxopini
pipe — tcudka, ihkinkosuhe
plain — xahoste
plant, to — wahkihedeic
play, to — menixeni
" a — kehni

play, (of women with ball) — mihptotke
play, (Tchungkee) — Skohpe
plover — miniswakahe
pluck, to — paxke
pointed — cihuc
pole-cat — co^{n}kte
pomme blanche — mahe
pond — minixedoc
poor — akarihe
porcupine — pahi
pot, of clay — berexe
potato — omenikatekxteqeri
powder (gun) — waracunte
prairie — okaraxta
precipice — pehuc
pregnant — ehxixte
proud — tahuixtecihkeric
pulse — katinktinkkanaqic
pumpkin — kode
'' (uncooked)— kodeseharutoc
pupil (of the eye) — istarupxe
push — putkec
put in the cache, to — moxdarahkoc

Q.

queue — pahinokskec
quiet — hapoeherohnknunihuc
quirt — ihkaparace
quiver — ixtike

R.

rabbit — maxtike
race— ptihi^{n}kikeruc
rain — xehuc
'' to — haiduc
rainbow — xehikuhnde
Rampart Creek — Manahmeni Passahe
rat — mihtikxte
rattle — ihnade
raven — kaka
red — sukse, sehc, se
redden, to — stasehereh
reed — wihpuhde
reek — wiha
refuse, to — ruhkahuc
returned — kiride
revenge, to — tauihcabetunc
ribs — duthuhde
rich people — kowakahdehunc
ring, to — nihe
ripe — manabihdukeihkamenihude
river — passahe, passa^{n}he
robe — mahitu, mihihe
robin — mandeka^{n}ka
rock — misanake
'' large — misanakextec
'' (cliff) — ihcancekeh
Rocky Mts. — Mihnde Manke
roe (fish) — ponika
root — manahisse
rosin — ohruckop
rot, to — terrepoc
round — sanakohc
run — ptehuc

S.

sack (of skin) — ihwatarake
sacrifice — wapaci
saddle, of a horse — menissaganake
saliva — oksohke
salt or sugar, to — skuhoc
salt or sugar — waskucote
sand — mapucakohc
sandstone — wipuci
sash — ixparake
scaffold, for dead—ohmaxe, macote
scale — posi
scalp — pandopxi
scalp-dance — pandopxinapic, wihsekekenahpic
scar — oxatuhc
scent, to — ihkameninduc
scrape — onkaberic
scraper, for hides — ihwadipka
sea — minikerre
seat — ita
secretly — axawehc
see — wahec
shadow — ahkunc
shake, to — katidiricuc
shallow — minipsikac

sharp — cihuc
shave, to — hikirukes
she — ih
sheep (bighorn) — a^{n}saxte
shield — wahki
shin bone — dopkahge
ship — menankaxte
shirt — imacote
" buckskin—wapanhi imacote
shiver, to — kaxohkaharawahankic
shoot, to (with gun) — eruhpakahte
" " (with bow) — mananahnihnduc
short — sanakoc
shot pouch — watuceduke
shoulder — akit
show, to — hehmenihedic
shrub — manasuke
shut against,to — ikisanpac
sick — ahxenaduc
sieze — wacakoc
silver — watucocote
sinew — hise
sing, to — wakikinaruc
sister — tamixena
" (eldest) — menuke
" (youngest) — ptanka
sit, to — kikanake
skin — dopxi
skin lodge — tihinkoti
sledge — manawiratohe
sleep, to — hanaruc
" to fall to — wahanaeduksanhuc
sleepy — hanaruk
slide, to — pacihuc
small — xamahe
smallpox — xedepe
smoke — hihuc
" to — manachihnduc
smooth — sa^{n}hic
" to — kasa^{n}hic
Snake or Shoshone Inds. — Wahkiruxkanumanke
snake — wahxkeruxka
" rattle — mataxopini
sneak upon, to — xeruhradehuc
snipe — marexsepaguxa^{n}xska
snow — wahe
snow-shoes — manahumpe
soldier — kawakarakaxe
something — ikotui
son — konike
son-in-law — rohhankoc
sour — haruc
spark — waranihka
speak — rohdec
spear — manaitirutcuke
spirits or ghosts — munoheka
spoon (of horn) — manse
spread, to — pxiheric
spring, to — skec
spring, a — minihini
spring (season) — behinunde
spy out, to — oksohkuc
squash — rode
squint — istakxekohc
stab, to — rapec
stain, to — ahksehuc
stars — xkaka
" shooting — rokankadehuc
steal — wanunduc
step-father — ptutt
step-mother — ptehinx
stick or pole — manakcuke
stingy — cirukoc
stirrup — menissiwaxungke
stomach or belly — taxaraxe
stone — misanake
" large — mindextec
stone (of a fruit) — tsuhnta
stop up, to — patarokoc
storm — hampexikoc (a bad day)
straight — cohruc
stream — minixcakoc
strike, to — rotkec
strong — sinhuc
struggle, to — rahpuc
stump — manahuta
sugar (white) — waskucote
summer — raskeke
surprise — wahetex

swallow, to — ocaropoc
swan — madexopni
sweat, to — dasi^{n}kohc
sweep, to — ipkukicuc
sweet — skuhoc
swift — katucoc
swim, to — ihwaxahac
swollen — pahoc
sun — menahka

T.

tail — conte
tallow — sinde
tan (or dress), to — ruhintuc
tangle up, to — ihkirumenic
Tattooed Face (village name) — Histoppe
teach, to — ikikuhnta
tears — istaminihuhruc
tear out, to — packe
" down, to — ohsehruc
" up, to — ruxa^{n}koc
testicle — asutka
Teton R. — Minixte Passahe
that — eθ
thaw — racedehuc
there — etta
they — iona or ihetta
thick — xtec
thief — wanundexte
thigh — dokoc
thin — pampihc
think — wapucide, wapusoc
this — ant
throat — nutiake
throat, sore — itaenunahruc
throw out, to — kaxerutoc
thumb — onka
thunder — xeinihe
tickle — ruksiksikuc
tie, to — kaskec
tinder — mihkade
tired — iwahatec
tiresome — xehruc
itmouse — patahpsi
to — oh
toad — hatka
tobacco — manaca
" (mixed with cornus) — manacotkicxe
tobacco pouch — manacedoke
to-day — ehampe
toe — cipa
" (second) — cihapa
toe (smallest) — cinika
tomahawk — axkenkse
" of stone — mihkaske
" of wood — manapauice
to-morrow — mahtke
day after to-morrow — mahtke ohma esta
tongue — desike
tooth — hi
toothache — hinahruc
top — mahakahgitta
tough, sticky — kedehruc
trade, to — wikaruc
trail — onihnde
trap or fall — ahxkataxka
travois, a — menissican
tree — manaininduc
tremble, to — katidericuc
true — tkucoc
turkey — marusi
" cock, wild — mahnsi
" buzzard — ruhahde
turn around, to — kiptahanikusoc
turnip — mahoc
turtle — kipsa^{n}de
twice — xanahrenumpoc
twist — mihnuptakohc
twisted — kaminic

U.

ugly — xikanacoc
uncle — ratode
under — mahpita
unfruitful — ohromikohc
unhealthy — wahcixihc
unripe — canhohc
upon — akia
urine — dexe

V.

valley — owakope
vein — iduke
vermilion — wahsap
very — kucoc
village — mihti
vine — hachude

W.

wait, to — kihahnakoc
wake, to — kitahruc
walk — ninduc
war-club — mixaske
war-dance — kiruksahnapic
war-hoop — ceddekohc
warm — dadecuc
warrior — kiraksanxarakac
wash, to — kiruskikuc
watch, to — iwakcuntuc
water — mini
water jar — minimihnde
wax — ohkeruceecipkaohdeke
we — nu or nuona
weak — ahikoc
weasel — mahxpax
wedge (of wood) — manakakihhe
weed — mahe
wet — akapoc
what (relative) — ta
" (interrog.) — tackaL
what thing — aankotewe
what person — iinkotewe
which — kotewe
whirlpool (in water) — miniruhmenicka
whiskey — minipahde
whistle — ihkoce
white — cote or cotte
white buffalo — wokada
White Earth R. — minicote passahe
white men — waci
who — teve or tewe
wicked (hated) — xikoc
wife — murse or kons
willow — haxsehuhde
wind — ehe
windpipe — inihe
wing — apxac
winter — mahna
wish, to — iteruc
within — kucta
without — akeha
wolf (grey) — harrata
" prairie (coyote) — ceheke
woman — mihe
woodpecker — tocka
work, to — waisekoc
worm — waixirika
wrap up, to — ikikahmenic
wrinkle — sihpoc
write, to — kapusoc
writing — kapuse

Y.

yawn — ixbedehruc
year — mahna
years — manahna
yellow — pside
Yellowstone R. — Mihsi
yes — ho^{n}
yesterday — xodake
" day before — horakekusero
yolk (of an egg) — mandeksukniikakuhctaosiida
you — da or θa
young — xamahoc
" the (of animals) — konika

[220-222 blank.]

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[Additional information, specifically the section on the archaeology of the Burgois site, will be found in category 116, pp. 148-87.]

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[For information on "clans" see category 614.]